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Total Cross-Sections for Reactions  
of High Energy Particles  
(Including Elastic, Topological, Inclusive  
and Exclusive Reactions)

**Subvolume b**

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Editor: H. Schopper



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## Preface

This volume supplements the volumes which have appeared so far in group I concerning cross-sections of elementary particle reactions at high energies. While earlier volumes treated data of special reactions in the most complete way (including angular distributions), this volume contains the total cross sections of all reactions observed so far, with neutrinos, gamma rays, charged pions and kaons, nucleons and antinucleons and hyperons as incident particles. The data is grouped on the one hand into elastic and inelastic reactions and on the other hand into exclusive (all particles in the final state are observed) and inclusive (only one or few particles are measured in the final state) reactions.

In selecting the data best values were established in order to give also the non-specialist the possibility to use the most reliable known values or, if necessary, to find them by interpolation. Because of the enormous amount of experimental material this was not an easy task. Fortunately it was possible to find distinguished authors with many years of experience and competence in the evaluation and compilation of total cross-sections. For a long period they have been preparing the HERA-tables published by CERN which, however, do not put the emphasis on providing best values, but rather have the aim to provide the specialist continuously with the most recent data.

Due to the amount of the available data it was necessary to distribute the material in two volumes which, however, should be considered as an integral unit.

Apart from the authors I should like to thank the editor-in-chief, the editorial office and the publishers for solving the unavoidable technical and administrative difficulties in a rapid and efficient way. This volume, like all other volumes of Landolt-Börnstein, has been published without financial support from any outside source.

Geneva, August 1987

**The Editor**

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# IX Photon induced reactions

## IX. 1 List of reactions

No.	Reaction	No.	Reaction
1.	$\gamma$ Nucleon $\rightarrow$ Charmed Particles	51.	$\gamma p \rightarrow p \pi^+ \pi^- \eta$
2.	$\gamma$ Nucleon $\rightarrow \Lambda_c^+ D_c^-$ Anything	52.	$\gamma p \rightarrow p \pi^+ \pi^- \rho^0$
3.	$\gamma$ Nucleon $\rightarrow \Lambda_c^+ \bar{D}_c^0$ Anything	53.	$\gamma p \rightarrow p \pi^+ \pi^- \omega$
4.	$\gamma$ Nucleon $\rightarrow D_c^+ D_c^-$ Anything	54.	$\gamma p \rightarrow p \pi^+ \pi^- \phi$
5.	$\gamma$ Nucleon $\rightarrow D_c^+ \bar{D}_c^0$ Anything	55.	$\gamma p \rightarrow p \pi^+ \pi^- A_1^0$
6.	$\gamma$ Nucleon $\rightarrow D_c^0 \bar{D}_c^0$ Anything	56.	$\gamma p \rightarrow p \pi^+ \pi^- K^+ K^-$
7.	$\gamma$ Nucleon $\rightarrow D_c^0 D_c^-$ Anything	57.	$\gamma p \rightarrow p \pi^+ \pi^-$ miss. mass
8.	$\gamma$ Nucleon $\rightarrow \bar{D}_c^0$ Anything	58.	$\gamma p \rightarrow p \pi^+ \rho^-$
9.	$\gamma p \rightarrow$ Total	59.	$\gamma p \rightarrow p \pi^+ A_2^-$
10.	$\gamma p \rightarrow$ Elastic	60.	$\gamma p \rightarrow p 2 \pi^+ \pi^0 2 \pi^-$
11.	$\gamma p \rightarrow$ Strange Particles	61.	$\gamma p \rightarrow p 2 \pi^+ 2 \pi^-$
12.	$\gamma p \rightarrow$ 1 Prongs	62.	$\gamma p \rightarrow p 2 \pi^+ 2 \pi^- K^+ K^-$
13.	$\gamma p \rightarrow$ 1 Prongs $\Lambda$	63.	$\gamma p \rightarrow p 2 \pi^+ 2 \pi^-$ miss. mass
14.	$\gamma p \rightarrow$ 1 Prongs $K^0_s$	64.	$\gamma p \rightarrow p 3 \pi^+ \pi^0 3 \pi^-$
15.	$\gamma p \rightarrow$ 1 Prongs $\bar{\Lambda}$	65.	$\gamma p \rightarrow p 3 \pi^+ 3 \pi^-$
16.	$\gamma p \rightarrow$ 3 Prongs	66.	$\gamma p \rightarrow p 4 \pi^+ \pi^0 4 \pi^-$
17.	$\gamma p \rightarrow$ 3 Prongs $\Lambda$	67.	$\gamma p \rightarrow p 4 \pi^+ 4 \pi^-$
18.	$\gamma p \rightarrow$ 3 Prongs $K^0_s$	68.	$\gamma p \rightarrow p \pi^0$
19.	$\gamma p \rightarrow$ 3 Prongs $\bar{\Lambda}$	69.	$\gamma p \rightarrow p \pi^0 \rho^0$
20.	$\gamma p \rightarrow$ 5 Prongs	70.	$\gamma p \rightarrow p \pi^0 \omega$
21.	$\gamma p \rightarrow$ 5 Prongs $\Lambda$	71.	$\gamma p \rightarrow p \pi^0 \phi$
22.	$\gamma p \rightarrow$ 5 Prongs $K^0_s$	72.	$\gamma p \rightarrow p \pi^0 K^+ K^-$
23.	$\gamma p \rightarrow$ 5 Prongs $\bar{\Lambda}$	73.	$\gamma p \rightarrow p \pi^- \rho^+$
24.	$\gamma p \rightarrow$ 7 Prongs	74.	$\gamma p \rightarrow p \eta$
25.	$\gamma p \rightarrow$ 7 Prongs $\Lambda$	75.	$\gamma p \rightarrow p \rho^0$
26.	$\gamma p \rightarrow$ 7 Prongs $K^0_s$	76.	$\gamma p \rightarrow p \rho^0$ ( Backward )
27.	$\gamma p \rightarrow$ 7 Prongs $\bar{\Lambda}$	77.	$\gamma p \rightarrow p \omega$
28.	$\gamma p \rightarrow$ 9 Prongs	78.	$\gamma p \rightarrow p \eta^*$
29.	$\gamma p \rightarrow$ 9 Prongs $\Lambda$	79.	$\gamma p \rightarrow p S^*$
30.	$\gamma p \rightarrow$ 9 Prongs $K^0_s$	80.	$\gamma p \rightarrow p \phi$
31.	$\gamma p \rightarrow$ 11 Prongs $K^0_s$	81.	$\gamma p \rightarrow p B^0$
32.	$\gamma p \rightarrow \Xi^-$ Anything	82.	$\gamma p \rightarrow p f$
33.	$\gamma p \rightarrow \Lambda K^+$	83.	$\gamma p \rightarrow p f'$
34.	$\gamma p \rightarrow \Lambda K^0_s$ Anything	84.	$\gamma p \rightarrow p \rho^0$
35.	$\gamma p \rightarrow \Lambda \bar{\Lambda}$ Anything	85.	$\gamma p \rightarrow p \omega_{1670}$
36.	$\gamma p \rightarrow \Lambda$ Anything	86.	$\gamma p \rightarrow p \phi$
37.	$\gamma p \rightarrow 2 \Lambda$ Anything	87.	$\gamma p \rightarrow p g^0$
38.	$\gamma p \rightarrow \Lambda_{1520} K^+$	88.	$\gamma p \rightarrow p \psi$
39.	$\gamma p \rightarrow \Lambda_{1520}$ Anything	89.	$\gamma p \rightarrow p K^+ K^-$
40.	$\gamma p \rightarrow \Sigma^+ K^0$	90.	$\gamma p \rightarrow p K^+ K^{*-}_{890}$
41.	$\gamma p \rightarrow \Sigma^0 K^+$	91.	$\gamma p \rightarrow p K^- K^{*+}_{890}$
42.	$\gamma p \rightarrow \Sigma^0$ Anything	92.	$\gamma p \rightarrow p K^0_S K^{*0}_{890}$
43.	$\gamma p \rightarrow \Sigma_{1385}$ Anything	93.	$\gamma p \rightarrow 2 p p$
44.	$\gamma p \rightarrow \Sigma^+_{1385} K^0$	94.	$\gamma p \rightarrow n \pi^+$
45.	$\gamma p \rightarrow \Sigma^+_{1385}$ Anything	95.	$\gamma p \rightarrow n \pi^+ \rho^0$
46.	$\gamma p \rightarrow \Sigma^0_{1385} K^+$	96.	$\gamma p \rightarrow n 2 \pi^+ \pi^0 \pi^-$
47.	$\gamma p \rightarrow \Sigma^-_{1385}$ Anything	97.	$\gamma p \rightarrow n 2 \pi^+ 2 \pi^0 \pi^-$
48.	$\gamma p \rightarrow p \pi^+ \pi^0 \pi^-$	98.	$\gamma p \rightarrow n 2 \pi^+ \pi^-$
49.	$\gamma p \rightarrow p \pi^+ \pi^0 \pi^- \rho^0$	99.	$\gamma p \rightarrow n 2 \pi^+ \pi^-$ miss. mass
50.	$\gamma p \rightarrow p \pi^+ \pi^-$	100.	$\gamma p \rightarrow n 3 \pi^+ 2 \pi^-$

## IX.1 $\gamma$ : List of reactions

No.	Reaction	No.	Reaction
101.	$\gamma p \rightarrow n 3 \pi^+ 2 \pi^-$ miss. mass	145.	$\gamma n \rightarrow 8$ Prongs
102.	$\gamma p \rightarrow n 4 \pi^+ 3 \pi^-$	146.	$\gamma n \rightarrow \Lambda K^{*0}_{890}$
103.	$\gamma p \rightarrow n 5 \pi^+ 4 \pi^-$	147.	$\gamma n \rightarrow p \pi^+ \pi^0 2 \pi^-$
104.	$\gamma p \rightarrow n \rho^+$	148.	$\gamma n \rightarrow p \pi^+ \pi^- \rho^-$
105.	$\gamma p \rightarrow n A_2^+$	149.	$\gamma n \rightarrow p \pi^+ 2 \pi^-$
106.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^+ \pi^0 2 \pi^-$	150.	$\gamma n \rightarrow p \pi^0 \pi^-$
107.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^+ 2 \pi^-$	151.	$\gamma n \rightarrow p \pi^0 \pi^- \rho^0$
108.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^0 \pi^-$	152.	$\gamma n \rightarrow p \pi^-$
109.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^-$	153.	$\gamma n \rightarrow p \pi^- \rho^0$
110.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^- \rho^0$	154.	$\gamma n \rightarrow p \pi^- \omega$
111.	$\gamma p \rightarrow \Delta^{++}_{1236} \pi^- \omega$	155.	$\gamma n \rightarrow p \rho^-$
112.	$\gamma p \rightarrow \Delta^{++}_{1236} \rho^-$	156.	$\gamma n \rightarrow p A_2^-$
113.	$\gamma p \rightarrow \Delta^{++}_{1236} A_1^-$	157.	$\gamma n \rightarrow n \pi^+ \pi^-$
114.	$\gamma p \rightarrow \Delta^{++}_{1236} A_2^-$	158.	$\gamma n \rightarrow n \pi^+ \pi^- \rho^0$
115.	$\gamma p \rightarrow \Delta^+_{1236} \pi^+ \pi^-$	159.	$\gamma n \rightarrow n 2 \pi^+ 2 \pi^-$
116.	$\gamma p \rightarrow \Delta^+_{1236} \rho^0$	160.	$\gamma n \rightarrow \Delta^{++}_{1236} 2 \pi^-$
117.	$\gamma p \rightarrow \Delta^+_{1236} \omega$	161.	$\gamma n \rightarrow \Delta^+_{1236} \pi^-$
118.	$\gamma p \rightarrow \Delta^0_{1236} \pi^+$	162.	$\gamma n \rightarrow \Delta^0_{1236} \pi^+ \pi^-$
119.	$\gamma p \rightarrow \Delta^0_{1236} 2 \pi^+ \pi^-$	163.	$\gamma n \rightarrow \Delta^-_{1236} \pi^+$
120.	$\gamma p \rightarrow \Delta^0_{1236} \rho^+$	164.	$\gamma n \rightarrow \Delta^-_{1236} \pi^+ \rho^0$
121.	$\gamma p \rightarrow \Delta^-_{1236} 2 \pi^+$	165.	$\gamma n \rightarrow \Delta^-_{1236} 2 \pi^+ \pi^-$
122.	$\gamma p \rightarrow \Delta^-_{1236} 3 \pi^+ \pi^-$	166.	$\gamma d \rightarrow$ Total
123.	$\gamma p \rightarrow \rho^0$ Anything	167.	$\gamma d \rightarrow$ Strange Particles
124.	$\gamma p \rightarrow \omega$ Anything	168.	$\gamma d \rightarrow$ 0 Prongs
125.	$\gamma p \rightarrow \psi$ Anything	169.	$\gamma d \rightarrow$ 1 Prongs
126.	$\gamma p \rightarrow \psi'$ Anything	170.	$\gamma d \rightarrow$ 2 Prongs
127.	$\gamma p \rightarrow K^0_s \bar{\Lambda}$ Anything	171.	$\gamma d \rightarrow$ 3 Prongs
128.	$\gamma p \rightarrow K^0_s$ Anything	172.	$\gamma d \rightarrow$ 4 Prongs
129.	$\gamma p \rightarrow 2 K^0_s$ Anything	173.	$\gamma d \rightarrow$ 5 Prongs
130.	$\gamma p \rightarrow K^{*+}_{890}$ Anything	174.	$\gamma d \rightarrow$ 6 Prongs
131.	$\gamma p \rightarrow K^{*-}_{890}$ Anything	175.	$\gamma d \rightarrow$ 7 Prongs
132.	$\gamma p \rightarrow$ Charmed Particles	176.	$\gamma d \rightarrow$ 8 Prongs
133.	$\gamma p \rightarrow D_c \bar{D}_c$ Anything	177.	$\gamma d \rightarrow$ 9 Prongs
134.	$\gamma p \rightarrow D_{c*}^0$ Anything	178.	$\gamma d \rightarrow d \pi^+ \pi^-$
135.	$\gamma p \rightarrow D_c^+ \bar{D}_c^+$ Anything	179.	$\gamma d \rightarrow d 2 \pi^+ 2 \pi^-$
136.	$\gamma p \rightarrow F_c^+ \bar{F}_c^-$ Anything	180.	$\gamma d \rightarrow d \rho^0$
137.	$\gamma p \rightarrow \Xi^-$ Anything	181.	$\gamma d \rightarrow d \omega$
138.	$\gamma p \rightarrow \Lambda$ Anything	182.	$\gamma d \rightarrow p n \pi^+ \pi^-$
139.	$\gamma n \rightarrow$ Total	183.	$\gamma d \rightarrow p n \rho^0$
140.	$\gamma n \rightarrow$ Strange Particles	184.	$\gamma d \rightarrow p n \omega$
141.	$\gamma n \rightarrow$ 0 Prongs	185.	$\gamma d \rightarrow 2 p \pi^0 \pi^-$
142.	$\gamma n \rightarrow$ 2 Prongs	186.	$\gamma d \rightarrow 2 p \pi^-$
143.	$\gamma n \rightarrow$ 4 Prongs	187.	$\gamma d \rightarrow \psi$ Anything
144.	$\gamma n \rightarrow$ 6 Prongs	188.	$\gamma He \rightarrow 2 d$

## IX. 2 Cross section data

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
1. $\gamma$ Nucleon $\rightarrow$ Charmed Particles						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.230 \cdot 10^{-3}$	$0.570 \cdot 10^{-4}$		Adamovich,PL,TBP-86	
2. $\gamma$ Nucleon $\rightarrow \Lambda_c^+ D_c^-$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.138 \cdot 10^{-4}$	$0.770 \cdot 10^{-5}$		Adamovich,PL,TBP-86	
3. $\gamma$ Nucleon $\rightarrow \Lambda_c^+ \bar{D}_c^0$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.506 \cdot 10^{-4}$	$0.303 \cdot 10^{-4}$		Adamovich,PL,TBP-86	
4. $\gamma$ Nucleon $\rightarrow D_c^+ D_c^-$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.276 \cdot 10^{-4}$	$0.260 \cdot 10^{-4}$		Adamovich,PL,TBP-86	
5. $\gamma$ Nucleon $\rightarrow D_c^+ \bar{D}_c^0$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.530 \cdot 10^{-4}$	$0.330 \cdot 10^{-4}$		Adamovich,PL,TBP-86	
6. $\gamma$ Nucleon $\rightarrow D_c^0 \bar{D}_c^0$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.690 \cdot 10^{-4}$	$0.340 \cdot 10^{-4}$		Adamovich,PL,TBP-86	
7. $\gamma$ Nucleon $\rightarrow D_c^0 \bar{D}_c^-$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	45.000	25.000	$0.115 \cdot 10^{-4}$	$0.750 \cdot 10^{-5}$		Adamovich,PL,TBP-86	
8. $\gamma$ Nucleon $\rightarrow \bar{D}_c^0$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\bar{D}_c^0 \rightarrow K^+ \pi^-$	55.000	15.000	$0.135 \cdot 10^{-4}$	$0.400 \cdot 10^{-5}$		Aston,PL94B,113-80	
...corrected for branching ratio...			$0.250 \cdot 10^{-3}$	$0.764 \cdot 10^{-4}$			
$\bar{D}_c^0 \rightarrow K^+ \pi^- \pi^0$	55.000	15.000	$0.108 \cdot 10^{-3}$	$0.330 \cdot 10^{-4}$		Aston,PL94B,113-80	
...corrected for branching ratio...			0.00062	0.00020			
$\bar{D}_c^0 \rightarrow K^0 \pi^+ \pi^-$	55.000	15.000	$0.390 \cdot 10^{-4}$	$0.110 \cdot 10^{-4}$		Aston,PL94B,113-80	
...corrected for branching ratio...			$0.459 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$			
9. $\gamma p \rightarrow$ Total						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.188		0.07880	0.04100		Bloom,SLAC653-69	
	0.205		0.11890	0.03800		Bloom,SLAC653-69	
	0.223		0.16820	0.03400		Bloom,SLAC653-69	
	0.242		0.20240	0.03100		Bloom,SLAC653-69	
	0.260		0.32340	0.03200		Bloom,SLAC653-69	
	0.265		0.42450	0.00800		Armstrong,PRD5,1640-72	
	0.279		0.38710	0.03400		Bloom,SLAC653-69	
	0.290		0.48700	0.00810		Armstrong,PRD5,1640-72	
	0.298		0.50420	0.03700		Bloom,SLAC653-69	
	0.315		0.52690	0.00810		Armstrong,PRD5,1640-72	
	0.318		0.53260	0.03700		Bloom,SLAC653-69	
	0.337		0.54230	0.03700		Bloom,SLAC653-69	
	0.340		0.47780	0.00830		Armstrong,PRD5,1640-72	
	0.357		0.48080	0.03000		Bloom,SLAC653-69	
	0.365		0.40660	0.00800		Armstrong,PRD5,1640-72	
	0.377		0.41100	0.03100		Bloom,SLAC653-69	
	0.390		0.33410	0.00760		Armstrong,PRD5,1640-72	
	0.397		0.31190	0.03300		Bloom,SLAC653-69	
	0.415		0.24440	0.00750		Armstrong,PRD5,1640-72	
	0.418		0.24960	0.03100		Bloom,SLAC653-69	
	0.438		0.21090	0.02600		Bloom,SLAC653-69	
	0.440		0.22450	0.00670		Armstrong,PRD5,1640-72	
	0.459		0.17420	0.02700		Bloom,SLAC653-69	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.465		0.20050	0.00660			Armstrong, PRD5, 1640-72	
0.481		0.18880	0.02600			Bloom, SLAC653-69	
0.490		0.17830	0.00650			Armstrong, PRD5, 1640-72	
0.502		0.17640	0.02500			Bloom, SLAC653-69	
0.515		0.17690	0.00640			Armstrong, PRD5, 1640-72	
0.524		0.16710	0.01700			Bloom, SLAC653-69	
0.540		0.18690	0.00620			Armstrong, PRD5, 1640-72	
0.546		0.19120	0.01700			Bloom, SLAC653-69	
0.565		0.19400	0.00400			Armstrong, PRD5, 1640-72	
0.568		0.21850	0.01700			Bloom, SLAC653-69	
0.590		0.20910	0.01800			Bloom, SLAC653-69	
0.590		0.21170	0.00390			Armstrong, PRD5, 1640-72	
0.613		0.23350	0.01600			Bloom, SLAC653-69	
0.615		0.22260	0.00410			Armstrong, PRD5, 1640-72	
0.636		0.23850	0.01600			Bloom, SLAC653-69	
0.640		0.23270	0.00420			Armstrong, PRD5, 1640-72	
0.659		0.24560	0.01800			Bloom, SLAC653-69	
0.661	0.107	0.21100	0.02200			Hilpert, PL27B, 474-68	
0.665		0.23950	0.00430			Armstrong, PRD5, 1640-72	
0.682		0.25140	0.01800			Bloom, SLAC653-69	
0.690		0.26460	0.00450			Armstrong, PRD5, 1640-72	
0.706		0.27390	0.01900			Bloom, SLAC653-69	
0.715		0.27900	0.00450			Armstrong, PRD5, 1640-72	
0.730		0.28910	0.02000			Bloom, SLAC653-69	
0.740		0.27560	0.00460			Armstrong, PRD5, 1640-72	
0.754		0.28660	0.01900			Bloom, SLAC653-69	
0.765		0.26070	0.00460			Armstrong, PRD5, 1640-72	
0.778		0.27510	0.01800			Bloom, SLAC653-69	
0.790		0.24470	0.00460			Armstrong, PRD5, 1640-72	
0.800		0.20100	0.02000			Dieterle, PRL23, 1191-69	
0.803		0.25870	0.01600			Bloom, SLAC653-69	
0.815		0.22110	0.00460			Armstrong, PRD5, 1640-72	
0.828		0.23160	0.01700			Bloom, SLAC653-69	
0.840		0.20630	0.00460			Armstrong, PRD5, 1640-72	
0.853		0.22990	0.01700			Bloom, SLAC653-69	
0.865		0.21370	0.00450			Armstrong, PRD5, 1640-72	
0.878		0.22660	0.01600			Bloom, SLAC653-69	
0.890		0.20880	0.00450			Armstrong, PRD5, 1640-72	
0.904		0.19980	0.01700			Bloom, SLAC653-69	
0.915		0.20170	0.00470			Armstrong, PRD5, 1640-72	
0.924	0.156	0.19300	0.01900			Hilpert, PL27B, 474-68	
0.929		0.23360	0.01800			Bloom, SLAC653-69	
0.940		0.20500	0.00460			Armstrong, PRD5, 1640-72	
0.956		0.21170	0.01600			Bloom, SLAC653-69	
0.965		0.20150	0.00480			Armstrong, PRD5, 1640-72	
0.982		0.22100	0.01500			Bloom, SLAC653-69	
0.990		0.21210	0.00490			Armstrong, PRD5, 1640-72	
1.008		0.23240	0.01500			Bloom, SLAC653-69	
1.015		0.21750	0.00500			Armstrong, PRD5, 1640-72	
1.035		0.22340	0.01600			Bloom, SLAC653-69	
1.040		0.21520	0.00490			Armstrong, PRD5, 1640-72	
1.062		0.24160	0.01700			Bloom, SLAC653-69	
1.065		0.19170	0.00500			Armstrong, PRD5, 1640-72	
1.089		0.23240	0.01800			Bloom, SLAC653-69	
1.090		0.19110	0.00500			Armstrong, PRD5, 1640-72	
1.115		0.17470	0.00500			Armstrong, PRD5, 1640-72	
1.117		0.22380	0.01600			Bloom, SLAC653-69	
1.140		0.16500	0.00480			Armstrong, PRD5, 1640-72	
1.144		0.20790	0.01500			Bloom, SLAC653-69	
1.150	0.150	0.18210	0.00780			Meyer, PL33B, 189-70	
1.165		0.15870	0.00490			Armstrong, PRD5, 1640-72	
1.172		0.15930	0.01700			Bloom, SLAC653-69	
1.190		0.16220	0.00500			Armstrong, PRD5, 1640-72	
1.200		0.18410	0.01800			Bloom, SLAC653-69	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow</math> Total (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.215		0.14960	0.00480			Armstrong, PRD5, 1640-72	
1.229		0.17530	0.01500			Bloom, SLAC653-69	
1.240		0.14860	0.00500			Armstrong, PRD5, 1640-72	
1.258		0.15260	0.01500			Bloom, SLAC653-69	
1.265		0.14380	0.00490			Armstrong, PRD5, 1640-72	
1.286		0.15560	0.01600			Bloom, SLAC653-69	
1.290		0.15560	0.00470			Armstrong, PRD5, 1640-72	
1.315		0.14680	0.00490			Armstrong, PRD5, 1640-72	
1.316		0.18060	0.01600			Bloom, SLAC653-69	
1.340		0.15360	0.00480			Armstrong, PRD5, 1640-72	
1.345		0.15990	0.01600			Bloom, SLAC653-69	
1.365		0.15440	0.00500			Armstrong, PRD5, 1640-72	
1.375		0.16430	0.01700			Bloom, SLAC653-69	
1.390		0.15360	0.00540			Armstrong, PRD5, 1640-72	
1.415		0.14680	0.00520			Armstrong, PRD5, 1640-72	
1.435		0.19680	0.01600			Bloom, SLAC653-69	
1.440	0.003	0.14510	0.00570			Ballam, PRL23, 498-69	
1.440		0.15350	0.00530			Armstrong, PRD5, 1640-72	
1.440		0.14510	0.00570			Ballam, PRD5, 545-72	
1.450	0.150	0.15370	0.00630			Meyer, PL33B, 189-70	
1.465		0.17080	0.01400			Bloom, SLAC653-69	
1.465		0.14420	0.00540			Armstrong, PRD5, 1640-72	
1.490		0.15150	0.00520			Armstrong, PRD5, 1640-72	
1.495		0.15810	0.01400			Bloom, SLAC653-69	
1.500		0.15100	0.00900			Dieterle, PRL23, 1191-69	
1.515		0.15590	0.00530			Armstrong, PRD5, 1640-72	
1.526		0.17540	0.01600			Bloom, SLAC653-69	
1.540		0.15410	0.00510			Armstrong, PRD5, 1640-72	
1.557		0.16500	0.01600			Bloom, SLAC653-69	
1.565		0.14610	0.00510			Armstrong, PRD5, 1640-72	
1.589		0.16370	0.01500			Bloom, SLAC653-69	
1.590		0.13880	0.00510			Armstrong, PRD5, 1640-72	
1.615		0.15650	0.00510			Armstrong, PRD5, 1640-72	
1.620		0.16400	0.01500			Bloom, SLAC653-69	
1.640		0.15020	0.00500			Armstrong, PRD5, 1640-72	
1.652		0.14170	0.01400			Bloom, SLAC653-69	
1.665		0.15030	0.00400			Armstrong, PRD5, 1640-72	
1.684		0.14230	0.01400			Bloom, SLAC653-69	
1.690		0.14540	0.00390			Armstrong, PRD5, 1640-72	
1.715		0.13890	0.00370			Armstrong, PRD5, 1640-72	
1.740		0.14450	0.00390			Armstrong, PRD5, 1640-72	
1.750	0.150	0.14600	0.00640			Meyer, PL33B, 189-70	
1.765		0.14250	0.00440			Armstrong, PRD5, 1640-72	
1.790		0.14150	0.00450			Armstrong, PRD5, 1640-72	
1.815		0.14240	0.00470			Armstrong, PRD5, 1640-72	
1.840		0.14320	0.00440			Armstrong, PRD5, 1640-72	
1.865		0.14860	0.00440			Armstrong, PRD5, 1640-72	
1.890		0.15390	0.00470			Armstrong, PRD5, 1640-72	
1.915		0.13540	0.00460			Armstrong, PRD5, 1640-72	
1.940		0.14800	0.00490			Armstrong, PRD5, 1640-72	
1.965		0.14430	0.00470			Armstrong, PRD5, 1640-72	
1.990		0.14350	0.00470			Armstrong, PRD5, 1640-72	
2.000		0.14170	0.00180			Armstrong, NPB41, 445-72	
2.000		0.14320	0.00270	0.00572		Michalowski, PRL39, 737-77	
2.015		0.14910	0.00480			Armstrong, PRD5, 1640-72	
2.040		0.14350	0.00520			Armstrong, PRD5, 1640-72	
2.050	0.150	0.14850	0.00670			Meyer, PL33B, 189-70	
2.065		0.13800	0.00530			Armstrong, PRD5, 1640-72	
2.090		0.13170	0.00530			Armstrong, PRD5, 1640-72	
2.115		0.14450	0.00520			Armstrong, PRD5, 1640-72	
2.140		0.13750	0.00530			Armstrong, PRD5, 1640-72	
2.165		0.14490	0.00530			Armstrong, PRD5, 1640-72	
2.190		0.13590	0.00530			Armstrong, PRD5, 1640-72	
2.200		0.13810	0.00190			Armstrong, NPB41, 445-72	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
2.215		0.13830	0.00540			Armstrong, PRD5, 1640-72	
2.240		0.13900	0.00550			Armstrong, PRD5, 1640-72	
2.253		0.14630	0.00800			Bloom, SLAC653-69	
2.265		0.13610	0.00550			Armstrong, PRD5, 1640-72	
2.290		0.12860	0.00550			Armstrong, PRD5, 1640-72	
2.315		0.13590	0.00560			Armstrong, PRD5, 1640-72	
2.340		0.13950	0.00580			Armstrong, PRD5, 1640-72	
2.350	0.150	0.14420	0.00800			Meyer, PL33B, 189-70	
2.365		0.13270	0.00550			Armstrong, PRD5, 1640-72	
2.390		0.13870	0.00560			Armstrong, PRD5, 1640-72	
2.400		0.13870	0.00200			Armstrong, NPB41, 445-72	
2.415		0.14310	0.00570			Armstrong, PRD5, 1640-72	
2.440		0.14030	0.00580			Armstrong, PRD5, 1640-72	
2.465		0.14040	0.00560			Armstrong, PRD5, 1640-72	
2.490		0.13890	0.00610			Armstrong, PRD5, 1640-72	
2.500		0.13400	0.00800			Dieterle, PRL23, 1191-69	
2.515		0.14100	0.00580			Armstrong, PRD5, 1640-72	
2.540		0.13040	0.00580			Armstrong, PRD5, 1640-72	
2.565		0.13630	0.00570			Armstrong, PRD5, 1640-72	
2.590		0.12410	0.00770			Armstrong, PRD5, 1640-72	
2.600		0.13210	0.00210			Armstrong, NPB41, 445-72	
2.615		0.12840	0.00700			Armstrong, PRD5, 1640-72	
2.640		0.12990	0.00770			Armstrong, PRD5, 1640-72	
2.650	0.150	0.14200	0.00950			Meyer, PL33B, 189-70	
2.665		0.13250	0.00730			Armstrong, PRD5, 1640-72	
2.690		0.13430	0.00590			Armstrong, PRD5, 1640-72	
2.715		0.13870	0.00600			Armstrong, PRD5, 1640-72	
2.740		0.13280	0.00610			Armstrong, PRD5, 1640-72	
2.765		0.14440	0.00430			Armstrong, PRD5, 1640-72	
2.790		0.13340	0.00410			Armstrong, PRD5, 1640-72	
2.800		0.13540	0.00160			Armstrong, NPB41, 445-72	
2.800	0.500	0.13200	0.00300			Ballam, PRD5, 545-72	
2.815		0.13620	0.00380			Armstrong, PRD5, 1640-72	
2.840	0.010	0.13130	0.00430			Ballam, PRL23, 498-69	
2.840		0.13020	0.00400			Armstrong, PRD5, 1640-72	
2.865		0.13380	0.00370			Armstrong, PRD5, 1640-72	
2.888		0.14820	0.00500			Bloom, SLAC653-69	
2.890		0.13390	0.00380			Armstrong, PRD5, 1640-72	
2.915		0.13040	0.00390			Armstrong, PRD5, 1640-72	
2.940		0.13140	0.00400			Armstrong, PRD5, 1640-72	
2.950	0.150	0.12980	0.00690			Meyer, PL33B, 189-70	
2.965		0.12870	0.00400			Armstrong, PRD5, 1640-72	
2.990		0.14040	0.00400			Armstrong, PRD5, 1640-72	
3.000		0.13380	0.00150			Armstrong, NPB41, 445-72	
3.015		0.13830	0.00410			Armstrong, PRD5, 1640-72	
3.040		0.12920	0.00430			Armstrong, PRD5, 1640-72	
3.065		0.14360	0.00400			Armstrong, PRD5, 1640-72	
3.090		0.12800	0.00420			Armstrong, PRD5, 1640-72	
3.115		0.13260	0.00400			Armstrong, PRD5, 1640-72	
3.140		0.13210	0.00440			Armstrong, PRD5, 1640-72	
3.165		0.12680	0.00500			Armstrong, PRD5, 1640-72	
3.190		0.12780	0.00510			Armstrong, PRD5, 1640-72	
3.200		0.12700	0.00170			Armstrong, NPB41, 445-72	
3.215		0.12430	0.00490			Armstrong, PRD5, 1640-72	
3.240		0.12390	0.00490			Armstrong, PRD5, 1640-72	
3.250	0.150	0.13270	0.00600			Meyer, PL33B, 189-70	
3.265		0.12710	0.00520			Armstrong, PRD5, 1640-72	
3.270		0.12680	0.00220	0.00508		Michalowski, PRL39, 737-77	
3.290		0.12130	0.00500			Armstrong, PRD5, 1640-72	
3.315		0.13380	0.00510			Armstrong, PRD5, 1640-72	
3.340		0.12870	0.00510			Armstrong, PRD5, 1640-72	
3.365		0.13430	0.00520			Armstrong, PRD5, 1640-72	
3.390		0.12310	0.00510			Armstrong, PRD5, 1640-72	
3.400		0.12910	0.00180			Armstrong, NPB41, 445-72	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
3.415		0.13170	0.00540			Armstrong, PRD5, 1640-72	
3.440		0.12140	0.00530			Armstrong, PRD5, 1640-72	
3.465		0.13700	0.00520			Armstrong, PRD5, 1640-72	
3.490		0.12320	0.00520			Armstrong, PRD5, 1640-72	
3.515		0.13010	0.00540			Armstrong, PRD5, 1640-72	
3.540		0.13480	0.00540			Armstrong, PRD5, 1640-72	
3.550	0.150	0.12720	0.00620			Meyer, PL33B, 189-70	
3.565		0.12940	0.00530			Armstrong, PRD5, 1640-72	
3.590		0.14170	0.00500			Bloom, SLAC653-69	
3.590		0.12780	0.00600			Armstrong, PRD5, 1640-72	
3.600		0.12570	0.00200			Armstrong, NPB41, 445-72	
3.615		0.12270	0.00570			Armstrong, PRD5, 1640-72	
3.640		0.12180	0.00550			Armstrong, PRD5, 1640-72	
3.665		0.11980	0.00560			Armstrong, PRD5, 1640-72	
3.690		0.11930	0.00570			Armstrong, PRD5, 1640-72	
3.700		0.12840	0.00460			Caldwell, PRD7, 1362-73	
3.715		0.13420	0.00540			Armstrong, PRD5, 1640-72	
3.740		0.13230	0.00550			Armstrong, PRD5, 1640-72	
3.765		0.12480	0.00580			Armstrong, PRD5, 1640-72	
3.790		0.12200	0.00560			Armstrong, PRD5, 1640-72	
3.800		0.12640	0.00200			Armstrong, NPB41, 445-72	
3.815		0.11390	0.00550			Armstrong, PRD5, 1640-72	
3.840		0.12710	0.00600			Armstrong, PRD5, 1640-72	
3.850	0.150	0.13460	0.00640			Meyer, PL33B, 189-70	
3.865		0.12240	0.00590			Armstrong, PRD5, 1640-72	
3.890		0.13470	0.00590			Armstrong, PRD5, 1640-72	
3.915		0.12490	0.00570			Armstrong, PRD5, 1640-72	
3.940		0.11630	0.00580			Armstrong, PRD5, 1640-72	
3.940		0.13610	0.00490			Caldwell, PRD7, 1362-73	
3.965		0.13620	0.00610			Armstrong, PRD5, 1640-72	
3.990		0.12360	0.00630			Armstrong, PRD5, 1640-72	
4.000		0.13050	0.00210			Armstrong, NPB41, 445-72	
4.000		0.12700	0.00800			Dieterle, PRL23, 1191-69	
4.015		0.14620	0.00630			Armstrong, PRD5, 1640-72	
4.040		0.13560	0.00630			Armstrong, PRD5, 1640-72	
4.065		0.11980	0.00660			Armstrong, PRD5, 1640-72	
4.090		0.14190	0.00680			Armstrong, PRD5, 1640-72	
4.115		0.13240	0.00690			Armstrong, PRD5, 1640-72	
4.140		0.12880	0.00650			Armstrong, PRD5, 1640-72	
4.150	0.150	0.13150	0.00660			Meyer, PL33B, 189-70	
4.165		0.13360	0.00680			Armstrong, PRD5, 1640-72	
4.190		0.13350	0.00720			Armstrong, PRD5, 1640-72	
4.190		0.13290	0.00500			Caldwell, PRD7, 1362-73	
4.215		0.12660	0.00690			Armstrong, PRD5, 1640-72	
4.359		0.13680	0.00500			Bloom, SLAC653-69	
4.430		0.12830	0.00570			Caldwell, PRD7, 1362-73	
4.450	0.150	0.12470	0.00580			Meyer, PL33B, 189-70	
4.700	0.600	0.12700	0.00300			Ballam, PRD5, 545-72	
4.700		0.12690	0.00420			Caldwell, PRD7, 1362-73	
4.750	0.150	0.12420	0.00540			Meyer, PL33B, 189-70	
4.810		0.12180	0.00220	0.00488		Michałowski, PRL39, 737-77	
5.010		0.13440	0.00440			Caldwell, PRD7, 1362-73	
5.050	0.150	0.12180	0.00450			Meyer, PL33B, 189-70	
5.195		0.13420	0.00500			Bloom, SLAC653-69	
5.320		0.12170	0.00440			Caldwell, PRD7, 1362-73	
5.350	0.150	0.12210	0.00600			Meyer, PL33B, 189-70	
5.630		0.13010	0.00520			Caldwell, PRD7, 1362-73	
5.650	0.150	0.11840	0.00500			Meyer, PL33B, 189-70	
5.750		0.12500	0.01100			Dieterle, PRL23, 1191-69	
5.950	0.150	0.12360	0.00550			Meyer, PL33B, 189-70	
5.980		0.12070	0.00400			Caldwell, PRD7, 1362-73	
6.097		0.13320	0.00500			Bloom, SLAC653-69	
6.210		0.11590	0.00220	0.00464		Michałowski, PRL39, 737-77	
6.250	0.150	0.12210	0.00560			Meyer, PL33B, 189-70	

IX.2  $\gamma$ : Cross section data

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow \text{Total}</math> (Continued)</b>							
6.370		0.12860	0.00420			Caldwell,PRD7,1362-73	
6.760		0.12010	0.00420			Caldwell,PRD7,1362-73	
7.065		0.13400	0.00600			Bloom,SLAC653-69	
7.160		0.11800	0.00450			Caldwell,PRD7,1362-73	
7.500		0.12200	0.00800			Alexander,NPB68,1-74	
7.680		0.12390	0.00400			Caldwell,PRD7,1362-73	
7.790		0.12380	0.00240	0.00496		Michalowski,PRL39,737-77	
8.100		0.12520	0.00600			Bloom,SLAC653-69	
8.180		0.12160	0.00410			Caldwell,PRD7,1362-73	
8.680		0.11920	0.00420			Caldwell,PRD7,1362-73	
8.950		0.12250	0.00410			Caldwell,PRD7,1362-73	
9.190		0.11490	0.00440			Caldwell,PRD7,1362-73	
9.202		0.13360	0.00800			Bloom,SLAC653-69	
9.300	1.000	0.12400	0.00250			Bingham,PRD8,1277-73	
9.510		0.11410	0.00280	0.00456		Michalowski,PRL39,737-77	
9.540		0.12350	0.00420			Caldwell,PRD7,1362-73	
9.750		0.11710	0.00400			Caldwell,PRD7,1362-73	
10.120		0.12220	0.00420			Caldwell,PRD7,1362-73	
10.371		0.13040	0.00700			Bloom,SLAC653-69	
10.390		0.12810	0.00430			Caldwell,PRD7,1362-73	
10.710		0.11210	0.00460			Caldwell,PRD7,1362-73	
11.030		0.12790	0.00440			Caldwell,PRD7,1362-73	
11.380		0.12140	0.00400			Caldwell,PRD7,1362-73	
11.606		0.12830	0.00900			Bloom,SLAC653-69	
11.670		0.12220	0.00460			Caldwell,PRD7,1362-73	
12.120		0.11530	0.00400			Caldwell,PRD7,1362-73	
12.390		0.11500	0.00450			Caldwell,PRD7,1362-73	
12.860		0.11620	0.00410			Caldwell,PRD7,1362-73	
12.907		0.11930	0.01200			Bloom,SLAC653-69	
13.200		0.11110	0.00450			Caldwell,PRD7,1362-73	
13.610		0.11770	0.00480			Caldwell,PRD7,1362-73	
14.010		0.11930	0.00490			Caldwell,PRD7,1362-73	
14.820		0.11330	0.00580			Caldwell,PRD7,1362-73	
14.920		0.11270	0.00420			Caldwell,PRD7,1362-73	
15.890		0.11490	0.00450			Caldwell,PRD7,1362-73	
16.870		0.11250	0.00590			Caldwell,PRD7,1362-73	
17.840		0.11520	0.00810			Caldwell,PRD7,1362-73	
18.300		0.11691	0.00070	0.00082		Caldwell,PRL40,1222-78	
23.200		0.11537	0.00074	0.00081		Caldwell,PRL40,1222-78	
27.700		0.11374	0.00103	0.00080		Caldwell,PRL40,1222-78	
30.900		0.11434	0.00109	0.00080		Caldwell,PRL40,1222-78	
31.400		0.11419	0.00055	0.00080		Caldwell,PRL40,1222-78	
34.200		0.11484	0.00110	0.00080		Caldwell,PRL40,1222-78	
36.500		0.11218	0.00141	0.00079		Caldwell,PRL40,1222-78	
37.900		0.11350	0.00060	0.00079		Caldwell,PRL40,1222-78	
43.900		0.11457	0.00083	0.00080		Caldwell,PRL40,1222-78	
44.500		0.11484	0.00050	0.00080		Caldwell,PRL40,1222-78	
48.400		0.11457	0.00087	0.00080		Caldwell,PRL40,1222-78	
52.600		0.11425	0.00088	0.00080		Caldwell,PRL40,1222-78	
54.900		0.11311	0.00054	0.00079		Caldwell,PRL40,1222-78	
55.600		0.11406	0.00114	0.00080		Caldwell,PRL40,1222-78	
64.300		0.11481	0.00076	0.00080		Caldwell,PRL40,1222-78	
67.900		0.11458	0.00056	0.00080		Caldwell,PRL40,1222-78	
71.400		0.11400	0.00079	0.00080		Caldwell,PRL40,1222-78	
77.900		0.11402	0.00079	0.00080		Caldwell,PRL40,1222-78	
82.400		0.11661	0.00102	0.00082		Caldwell,PRL40,1222-78	
83.900		0.11589	0.00061	0.00081		Caldwell,PRL40,1222-78	
98.600		0.11559	0.00089	0.00081		Caldwell,PRL40,1222-78	
98.900		0.11585	0.00074	0.00081		Caldwell,PRL40,1222-78	
109.100		0.11382	0.00089	0.00080		Caldwell,PRL40,1222-78	
118.800		0.11652	0.00099	0.00082		Caldwell,PRL40,1222-78	
121.800		0.11637	0.00087	0.00081		Caldwell,PRL40,1222-78	

SA = Systematic error included

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>9. <math>\gamma p \rightarrow</math> Total (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
126.000	0.11430	0.00113	0.00080			Caldwell,PRL40,1222-78	
142.000	0.11580	0.00131	0.00081			Caldwell,PRL40,1222-78	
157.800	0.11978	0.00130	0.00084			Caldwell,PRL40,1222-78	
172.200	0.11637	0.00134	0.00081			Caldwell,PRL40,1222-78	
182.700	0.11849	0.00162	0.00083			Caldwell,PRL40,1222-78	
<b>10. <math>\gamma p \rightarrow</math> Elastic</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.240	$0.691 \cdot 10^{-3}$	$0.103 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$			Genzel,ZP279,399-76	
0.280	$0.173 \cdot 10^{-2}$	$0.148 \cdot 10^{-3}$	$0.760 \cdot 10^{-4}$			Genzel,ZP279,399-76	
0.320	$0.275 \cdot 10^{-2}$	$0.176 \cdot 10^{-3}$	$0.121 \cdot 10^{-3}$			Genzel,ZP279,399-76	
0.360	$0.213 \cdot 10^{-2}$	$0.148 \cdot 10^{-3}$	$0.940 \cdot 10^{-4}$			Genzel,ZP279,399-76	
0.400	$0.146 \cdot 10^{-2}$	$0.126 \cdot 10^{-3}$	$0.640 \cdot 10^{-4}$			Genzel,ZP279,399-76	
0.440	$0.144 \cdot 10^{-2}$	$0.980 \cdot 10^{-4}$	$0.630 \cdot 10^{-4}$			Genzel,ZP279,399-76	
<b>11. <math>\gamma p \rightarrow</math> Strange Particles</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.750	0.150	0.00520	0.00060	0.00078		Struczinski,NPB108,45-76	
2.000	0.100	0.00590	0.00070	0.00088		Struczinski,NPB108,45-76	
2.200	0.100	0.00590	0.00070	0.00088		Struczinski,NPB108,45-76	
2.450	0.150	0.00690	0.00060	0.00103		Struczinski,NPB108,45-76	
2.925	0.325	0.00650	0.00050	0.00097		Struczinski,NPB108,45-76	
3.625	0.375	0.00910	0.00080	0.00136		Struczinski,NPB108,45-76	
4.500	0.500	0.00840	0.00080	0.00126		Struczinski,NPB108,45-76	
5.650	0.650	0.00870	0.00090	0.00130		Struczinski,NPB108,45-76	
<b>12. <math>\gamma p \rightarrow</math> 1 Prongs</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.443	0.025	0.05490	0.00320			Ballam,PRD5,545-72	
2.800	0.500	0.02290	0.00150			Ballam,PRD5,545-72	
4.700	0.600	0.01580	0.00120			Ballam,PRD5,545-72	
7.500		0.01180	0.00200			Alexander,NPB68,1-74	
9.300	1.000	0.00850	0.00110			Bingham,PRD8,1277-73	
<b>13. <math>\gamma p \rightarrow</math> 1 Prongs <math>\Lambda</math></b>							
	20.000	2.000	$0.737 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD29,1877-84	
<b>14. <math>\gamma p \rightarrow</math> 1 Prongs <math>K^0_s</math></b>							
	20.000	2.000	$0.101 \cdot 10^{-2}$	$0.570 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD29,1877-84	
<b>15. <math>\gamma p \rightarrow</math> 1 Prongs <math>\bar{\Lambda}</math></b>							
	20.000	2.000	$0.720 \cdot 10^{-4}$	$0.150 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD29,1877-84	
<b>16. <math>\gamma p \rightarrow</math> 3 Prongs</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.443	0.025	0.08560	0.00370			Ballam,PRL23,498-69	
1.750	0.150	0.09350	0.00380	0.01402		Struczinski,NPB108,45-76	
2.000	0.100	0.09510	0.00400	0.01426		Struczinski,NPB108,45-76	
2.200	0.100	0.09710	0.00430	0.01456		Struczinski,NPB108,45-76	
2.450	0.150	0.09410	0.00320	0.01412		Struczinski,NPB108,45-76	
2.800	0.500	0.09300	0.00220			Ballam,PRD5,545-72	
2.925	0.325	0.09280	0.00310	0.01392		Struczinski,NPB108,45-76	
3.625	0.375	0.08710	0.00360	0.01306		Struczinski,NPB108,45-76	
4.500	0.500	0.07820	0.00500	0.01173		Struczinski,NPB108,45-76	
4.700	0.600	0.08280	0.00190			Ballam,PRD5,545-72	
5.650	0.650	0.07340	0.00530	0.01101		Struczinski,NPB108,45-76	
7.500		0.06200	0.00400			Alexander,NPB68,1-74	
9.300	1.000	0.06410	0.01500			Bingham,PRD8,1277-73	
<b>17. <math>\gamma p \rightarrow</math> 3 Prongs <math>\Lambda</math></b>							
	20.000	2.000	$0.253 \cdot 10^{-2}$	$0.123 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD29,1877-84	
<b>18. <math>\gamma p \rightarrow</math> 3 Prongs <math>K^0_s</math></b>							
	20.000	2.000	$0.411 \cdot 10^{-2}$	$0.160 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD29,1877-84	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
19. $\gamma p \rightarrow 3$ Prongs $\bar{\Lambda}$	20.000	2.000	$0.750 \cdot 10^{-4}$	$0.260 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
20. $\gamma p \rightarrow 5$ Prongs						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.750	0.150	0.00330	0.00050	0.00049	Struczinski, NPB108, 45-76	
	2.000	0.100	0.00360	0.00050	0.00054	Struczinski, NPB108, 45-76	
	2.200	0.100	0.00320	0.00050	0.00048	Struczinski, NPB108, 45-76	
	2.450	0.150	0.00640	0.00050	0.00096	Struczinski, NPB108, 45-76	
	2.800	0.500	0.00840	0.00040		Ballam, PRD5, 545-72	
	2.925	0.325	0.01000	0.00070	0.00150	Struczinski, NPB108, 45-76	
	3.625	0.375	0.01400	0.00110	0.00210	Struczinski, NPB108, 45-76	
	4.500	0.500	0.02060	0.00130	0.00309	Struczinski, NPB108, 45-76	
	4.700	0.600	0.01910	0.00070		Ballam, PRD5, 545-72	
	5.650	0.650	0.02550	0.00160	0.00382	Struczinski, NPB108, 45-76	
	7.500	0.400	0.04160	0.00600		Ballam, PRL21, 1544-68	
	7.500		0.02700	0.00300		Alexander, NPB68, 1-74	
	9.300	1.000	0.03420	0.00090		Bingham, PRD8, 1277-73	
21. $\gamma p \rightarrow 5$ Prongs $\Lambda$	20.000	2.000	$0.173 \cdot 10^{-2}$	$0.920 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
22. $\gamma p \rightarrow 5$ Prongs $K_s^0$	20.000	2.000	$0.315 \cdot 10^{-2}$	$0.125 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
23. $\gamma p \rightarrow 5$ Prongs $\bar{\Lambda}$	20.000	2.000	$0.620 \cdot 10^{-4}$	$0.130 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
24. $\gamma p \rightarrow 7$ Prongs						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.800	0.500	$0.500 \cdot 10^{-4}$	$0.300 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	2.925	0.325	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	3.625	0.375	$0.600 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	4.500	0.500	$0.110 \cdot 10^{-2}$	$0.200 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
	4.700	0.600	$0.670 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$		Ballam, PRD5, 545-72	
	5.650	0.650	0.00210	0.00030	0.00032	Struczinski, NPB108, 45-76	
	7.500	0.400	0.02110	0.00150		Ballam, PRL21, 1544-68	
	7.500		0.00550	0.00100		Alexander, NPB68, 1-74	
	9.300	1.000	0.00680	0.00030		Bingham, PRD8, 1277-73	
25. $\gamma p \rightarrow 7$ Prongs $\Lambda$	20.000	2.000	$0.530 \cdot 10^{-3}$	$0.410 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
26. $\gamma p \rightarrow 7$ Prongs $K_s^0$	20.000	2.000	$0.101 \cdot 10^{-2}$	$0.550 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
27. $\gamma p \rightarrow 7$ Prongs $\bar{\Lambda}$	20.000	2.000	$0.210 \cdot 10^{-4}$	$0.700 \cdot 10^{-5}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
28. $\gamma p \rightarrow 9$ Prongs						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		$0.500 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Alexander, NPB68, 1-74	
	9.300	1.000	$0.610 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
29. $\gamma p \rightarrow 9$ Prongs $\Lambda$	20.000	2.000	$0.730 \cdot 10^{-4}$	$0.130 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
30. $\gamma p \rightarrow 9$ Prongs $K_s^0$	20.000	2.000	$0.132 \cdot 10^{-3}$	$0.170 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
31. $\gamma p \rightarrow 11$ Prongs $K_s^0$	20.000	2.000	$0.340 \cdot 10^{-4}$	$0.160 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29, 1877-84	
32. $\gamma p \rightarrow \Xi^-$ Anything	20.000		$0.117 \cdot 10^{-3}$	$0.170 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD32, 2869-85	EL

EL = Errors include both statistical and systematic contributions

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>33. <math>\gamma p \rightarrow \Lambda K^+</math></b>							
	0.955	0.045	0.00140	0.00037		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.050	0.050	0.00136	0.00036		Erbe,PR188,2060-69	
	1.150	0.050	0.00185	0.00045		Erbe,PR188,2060-69	
	1.250	0.050	0.00216	0.00051		Erbe,PR188,2060-69	
	1.350	0.050	0.00211	0.00053		Erbe,PR188,2060-69	
	1.450	0.050	0.00140	0.00044		Erbe,PR188,2060-69	
	1.550	0.050	0.00142	0.00047		Erbe,PR188,2060-69	
	1.650	0.050	0.00204	0.00059		Erbe,PR188,2060-69	
	1.750	0.050	0.00127	0.00048		Erbe,PR188,2060-69	
	1.850	0.050	0.00120	0.00049		Erbe,PR188,2060-69	
	1.950	0.050	0.00151	0.00057		Erbe,PR188,2060-69	
	2.200	0.200	$0.500 \cdot 10^{-3}$	$0.190 \cdot 10^{-3}$		Erbe,PR188,2060-69	
	2.600	0.200	$0.460 \cdot 10^{-3}$	$0.190 \cdot 10^{-3}$		Erbe,PR188,2060-69	
	3.000	0.200	0.00060	0.00025		Erbe,PR188,2060-69	
	3.400	0.200	0.00078	0.00029		Erbe,PR188,2060-69	
	4.700	1.100	$0.120 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$		Erbe,PR188,2060-69	
Threshold	0.912						
<b>34. <math>\gamma p \rightarrow \Lambda K^0_s</math> Anything</b>							
	20.000		$0.113 \cdot 10^{-2}$	$0.590 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD32,2869-85	EL
<b>35. <math>\gamma p \rightarrow \Lambda \bar{\Lambda}</math> Anything</b>							
	20.000		$0.126 \cdot 10^{-3}$	$0.380 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD32,2869-85	EL
<b>36. <math>\gamma p \rightarrow \Lambda</math> Anything</b>							
	20.000		$0.560 \cdot 10^{-2}$	$0.180 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD32,2869-85	EL
<b>37. <math>\gamma p \rightarrow 2 \Lambda</math> Anything</b>							
	20.000		$0.280 \cdot 10^{-4}$	$0.140 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Abe,PRD32,2869-85	EL
<b>38. <math>\gamma p \rightarrow \Lambda_{1520} K^+</math></b>							
	2.900	0.100	$0.800 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.100	0.100	$0.880 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$		Barber,ZPC7,17-80	
	3.300	0.100	$0.670 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Barber,ZPC7,17-80	
	3.500	0.100	$0.500 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	3.700	0.100	$0.400 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	3.900	0.100	$0.450 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	4.100	0.100	$0.400 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	4.300	0.100	$0.320 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	4.500	0.100	$0.250 \cdot 10^{-3}$	$0.200 \cdot 10^{-4}$		Barber,ZPC7,17-80	
	4.700	0.100	$0.250 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$		Barber,ZPC7,17-80	
Threshold	1.690						
<b>39. <math>\gamma p \rightarrow \Lambda_{1520}</math> Anything</b>							
	3.400	1.400	0.00630	0.00220		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Crouch,PRL13,636-64	
<b>40. <math>\gamma p \rightarrow \Sigma^+ K^0</math></b>							
	1.180	0.120	0.00069	0.00031		(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	1.046					Erbe,PR188,2060-69	
<b>41. <math>\gamma p \rightarrow \Sigma^0 K^+</math></b>							
	1.125	0.075	$0.620 \cdot 10^{-3}$	$0.190 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.250	0.050	0.00088	0.00033		Erbe,PR188,2060-69	
	1.350	0.050	0.00193	0.00050		Erbe,PR188,2060-69	
	1.450	0.050	0.00206	0.00055		Erbe,PR188,2060-69	
	1.600	0.100	0.00132	0.00033		Erbe,PR188,2060-69	
	1.850	0.150	0.00090	0.00024		Erbe,PR188,2060-69	
	2.500	0.500	$0.290 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Erbe,PR188,2060-69	
	4.400	1.400	$0.100 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$		Erbe,PR188,2060-69	
Threshold	1.046						

EL = Errors include both statistical and systematic contributions

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
42. $\gamma p \rightarrow \Sigma^0$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	20.000		0.00165	0.00044		Abe, PRD32,2869-85	
43. $\gamma p \rightarrow \Sigma_{1385}$ , Anything	3.400	1.400	0.00490	0.00250		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Crouch, PRL13,636-64	
44. $\gamma p \rightarrow \Sigma^+_{1385} K^0$	1.710	0.290	0.00068	0.00048		(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\Sigma^+_{1385} \rightarrow [\Lambda \pi^+]$	2.500	0.500	0.00040	0.00020		Erbe, PR188,2060-69	
	3.900	1.900	$0.130 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$		Erbe, NCA49,504-67	
Threshold	1.412					Erbe, PR188,2060-69	
45. $\gamma p \rightarrow \Sigma^+_{1385}$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	20.000		$0.600 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Abe, PRD29,1877-84	
	20.000		$0.630 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$		Abe, PRD32,2869-85	EL
46. $\gamma p \rightarrow \Sigma^0_{1385} K^+$	1.710	0.290	0.00067	0.00027		(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\Sigma^0_{1385} \rightarrow [\Lambda \pi^0]$	2.500	0.500	0.00045	0.00020		Erbe, PR188,2060-69	
$\Sigma^0_{1385} \rightarrow \text{idem}$	3.000	0.500	0.00030	0.00020		Erbe, NCA49,504-67	
	3.900	1.900	$0.150 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$		Crouch, PR156,1426-67	
$\Sigma^0_{1385} \rightarrow \text{idem}$	4.400	1.400	$0.220 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Erbe, PR188,2060-69	
Threshold	1.406					Erbe, NCA49,504-67	
47. $\gamma p \rightarrow \Sigma^-_{1385}$ Anything						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	20.000		$0.360 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Abe, PRD29,1877-84	
	20.000		$0.330 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		Abe, PRD32,2869-85	EL
48. $\gamma p \rightarrow p \pi^+ \pi^- \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.443	0.025	0.02040	0.00200		Ballam, PRD5,545-72	
	1.750	0.150	0.02590	0.00170	0.00388	Struczinski, NPB108,45-76	
	2.000	0.100	0.02500	0.00180	0.00375	Struczinski, NPB108,45-76	
	2.200	0.100	0.02600	0.00210	0.00390	Struczinski, NPB108,45-76	
	2.450	0.150	0.02360	0.00130	0.00354	Struczinski, NPB108,45-76	
	2.800	0.500	0.02490	0.00150		Ballam, PRD5,545-72	
	2.925	0.325	0.02320	0.00130	0.00348	Struczinski, NPB108,45-76	
	3.625	0.375	0.01880	0.00140	0.00282	Struczinski, NPB108,45-76	
	4.200	0.500	0.01820	0.00200		Eisenberg, PRD5,15-72	
	4.300		0.01820	0.00200		Eisenberg, PRD5,15-72	
	4.500	0.500	0.01800	0.00160	0.00270	Struczinski, NPB108,45-76	
	4.700	0.600	0.01510	0.00150		Ballam, PRD5,545-72	
	5.250	0.550	0.01350	0.00150		Eisenberg, PRD5,15-72	
	5.650	0.650	0.01440	0.00150	0.00216	Struczinski, NPB108,45-76	
	7.500	0.700	0.01180	0.00120		Ballam, PRL26,995-71	
	7.500	0.700	0.01180	0.00120		Eisenberg, PRD5,15-72	
	9.300	1.000	0.00750	0.00080		Bingham, PRD8,1277-73	
Threshold	0.506						
49. $\gamma p \rightarrow p \pi^+ \pi^0 \pi^- \rho^0$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.625	0.375	$0.800 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski, NPB108,45-76	
	5.000	1.000	$0.110 \cdot 10^{-2}$	$0.300 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski, NPB108,45-76	
Threshold	1.962						
50. $\gamma p \rightarrow p \pi^+ \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.373	0.021	0.00110	0.00040		Carbonara, NCA36,219-76	
	0.416	0.021	0.00400	0.00080		Carbonara, NCA36,219-76	
	0.450	0.050	0.00900	0.00100		Eisenberg, PRD5,15-72	
	0.458	0.021	0.01470	0.00170		Carbonara, NCA36,219-76	
	0.501	0.021	0.03070	0.00260		Carbonara, NCA36,219-76	
	0.544	0.021	0.04430	0.00320		Carbonara, NCA36,219-76	
	0.550	0.050	0.04760	0.00300		Eisenberg, PRD5,15-72	

EL = Errors include both statistical and systematic contributions

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>50. <math>\gamma p \rightarrow p \pi^+ \pi^-</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.586	0.021		0.06200	0.00410		Carbonara,NCA36,219-76	
0.629	0.021		0.07100	0.00460		Carbonara,NCA36,219-76	
0.672	0.021		0.06320	0.00470		Carbonara,NCA36,219-76	
0.714	0.021		0.06460	0.00490		Carbonara,NCA36,219-76	
0.756	0.022		0.07420	0.00560		Carbonara,NCA36,219-76	
0.799	0.021		0.06650	0.00590		Carbonara,NCA36,219-76	
0.800	0.200		0.07720	0.00350		Eisenberg,PRD5,15-72	
0.842	0.021		0.08150	0.00730		Carbonara,NCA36,219-76	
0.885	0.021		0.08150	0.00850		Carbonara,NCA36,219-76	
0.927	0.021		0.07530	0.00990		Carbonara,NCA36,219-76	
0.934			0.07890	0.00290		Hauser,PR160,1215-67	
0.985			0.07690	0.00330		Hauser,PR160,1215-67	
1.034			0.07530	0.00570		Hauser,PR160,1215-67	
1.086			0.07150	0.00500		Hauser,PR160,1215-67	
1.100	0.100		0.07020	0.00400		Eisenberg,PRD5,15-72	
1.136			0.07140	0.00450		Hauser,PR160,1215-67	
1.187			0.06060	0.00420		Hauser,PR160,1215-67	
1.236			0.06110	0.00480		Hauser,PR160,1215-67	
1.250	0.250		0.06350	0.00700		Davier,PRL21,841-68	
1.289			0.05910	0.00520		Hauser,PR160,1215-67	
1.350	0.150		0.06000	0.00350		Eisenberg,PRD5,15-72	
1.443	0.025		0.05760	0.00330		Ballam,PRD5,545-72	
1.750	0.150		0.04170	0.00230	0.00625	Struczinski,NPB108,45-76	
1.750	0.250		0.04100	0.00480		Davier,PRL21,841-68	
1.750	0.250		0.04950	0.00300		Eisenberg,PRD5,15-72	
2.000	0.100		0.03970	0.00240	0.00595	Struczinski,NPB108,45-76	
2.200	0.100		0.03850	0.00240	0.00577	Struczinski,NPB108,45-76	
2.250	0.250		0.03650	0.00200		Eisenberg,PRD5,15-72	
2.450	0.150		0.03380	0.00170	0.00507	Struczinski,NPB108,45-76	
2.500	0.500		0.03270	0.00320		Davier,PRL21,841-68	
2.750	0.250		0.03120	0.00220		Eisenberg,PRD5,15-72	
2.800			0.03140	0.00130		Bingham,PRL24,955-70	
2.800	0.500		0.03090	0.00120		Ballam,PRD5,545-72	
2.925	0.325		0.02810	0.00160	0.00421	Struczinski,NPB108,45-76	
3.250	0.250		0.02680	0.00200		Eisenberg,PRD5,15-72	
3.500	0.500		0.02700	0.00310		Davier,PRL21,841-68	
3.625	0.375		0.02340	0.00120	0.00351	Struczinski,NPB108,45-76	
3.750	0.250		0.02530	0.00250		Eisenberg,PRD5,15-72	
4.250	0.250		0.02070	0.00200		Eisenberg,PRD5,15-72	
4.300			0.02330	0.00130		Eisenberg,PRL22,669-69	
4.500	0.500		0.02250	0.00200	0.00337	Struczinski,NPB108,45-76	
4.700			0.02020	0.00080		Bingham,PRL24,955-70	
4.700	0.600		0.02050	0.00080		Ballam,PRD5,545-72	
5.000	1.000		0.02290	0.00310		Davier,PRL21,841-68	
5.150	1.050		0.02090	0.00170		Struczinski,NPB57,1-73	
5.250	0.750		0.01900	0.00100		Eisenberg,PRD5,15-72	
5.650	0.650		0.01950	0.00180	0.00292	Struczinski,NPB108,45-76	
6.250	0.750		0.01541	0.00118	0.00176	Park,NPB36,404-72	
6.500	0.500		0.01580	0.00200		Eisenberg,PRD5,15-72	
7.000	2.000		0.01505	0.00132	0.00163	Park,NPB36,404-72	
7.000	1.000		0.02000	0.00370		Davier,PRL21,841-68	
7.500	0.250		0.01450	0.00120		Alexander,NPB104,397-761	
7.500	0.400		0.01600	0.00200		Ballam,PRL21,1541-68	
9.000	1.000		0.01450	0.00250		Eisenberg,PRD5,15-72	
9.300	1.000		0.01470	0.00060		Bingham,PRD8,1277-73	
10.000	2.000		0.01550	0.00330		Davier,PRL21,841-68	
10.500	1.500		0.01435	0.00128	0.00164	Park,NPB36,404-72	
14.000	2.000		0.01280	0.00520		Davier,PRL21,841-68	
15.000	3.000		0.01437	0.00117	0.00178	Park,NPB36,404-72	
20.000			0.01110	0.00090		Abe,PRL53,751-84	
Threshold	0.321						

1 = Using a Deuterium target

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>51. <math>\gamma p \rightarrow p \pi^+ \pi^- \eta</math></b>							
	2.350	0.250	0.00140	0.00030	0.00021	Struczinski,NPB108,45-76	
	2.925	0.325	0.00280	0.00040	0.00042	Struczinski,NPB108,45-76	
$\eta \rightarrow [\pi^+ \pi^- \pi^0]$							
	3.000	0.500	0.00170	0.00110		Erbe,PR188,2060-69	
	3.625	0.375	$0.100 \cdot 10^{-2}$	$0.300 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
$\eta \rightarrow \text{idem}$	4.000	0.500	0.00280	0.00140		Erbe,PR188,2060-69	
	5.000	1.000	$0.110 \cdot 10^{-2}$	$0.400 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
$\eta \rightarrow \text{idem}$	5.150	0.650	0.00250	0.00130		Erbe,PR188,2060-69	
Threshold	1.193						
<b>52. <math>\gamma p \rightarrow p \pi^+ \pi^- \rho^0</math></b>							
	2.925	0.325	0.00140	0.00060	0.00021	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow [\pi^+ \pi^-]$	3.000	0.500	0.00110	0.00060		Erbe,PR188,2060-69	
$\rho^0 \rightarrow \text{idem}$	3.200	0.500	0.00270	0.00050		Alexander,PRD8,1965-73	
	3.625	0.375	0.00200	0.00070	0.00030	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	4.000	0.500	0.00290	0.00080		Erbe,PR188,2060-69	
$\rho^0 \rightarrow \text{idem}$	4.200	0.500	0.00250	0.00040		Alexander,PRD8,1965-73	
$\rho^0 \rightarrow \text{idem}$	4.300		0.00310	0.00110		Eisenberg,PRL22,669-69	
	4.500	0.500	0.00310	0.00080	0.00047	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	5.150	0.650	0.00320	0.00150		Erbe,PR188,2060-69	
$\rho^0 \rightarrow \text{idem}$	5.250		0.00270	0.00080		Ballam,PL30B,421-69	
$\rho^0 \rightarrow \text{idem}$	5.250	0.550	0.00210	0.00050		Alexander,PRD8,1965-73	
	5.500	0.500	0.00330	0.00080	0.00050	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	7.500	0.700	0.00360	0.00090		Alexander,PRD8,1965-73	
Threshold	1.665						
<b>53. <math>\gamma p \rightarrow p \pi^+ \pi^- \omega</math></b>							
	$\omega \rightarrow [\pi^+ \pi^- \pi^0]$						(Cross section units: $10^{-27} \text{ cm}^2$ )
	1.800	0.700	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Erbe,PR188,2060-69	
	2.350	0.250	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.925	0.325	0.00180	0.00030	0.00027	Struczinski,NPB108,45-76	
$\omega \rightarrow \text{idem}$	3.000	0.500	0.00180	0.00050		Erbe,PR188,2060-69	
	3.625	0.375	0.00200	0.00030	0.00030	Struczinski,NPB108,45-76	
$\omega \rightarrow \text{idem}$	4.000	0.500	0.00380	0.00080		Erbe,PR188,2060-69	
$\omega \rightarrow \text{idem}$	4.300		0.00160	0.00050		Eisenberg,PRL22,669-69	
	5.000	1.000	0.00160	0.00020	0.00024	Struczinski,NPB108,45-76	
$\omega \rightarrow \text{idem}$	5.150	0.650	0.00320	0.00150		Erbe,PR188,2060-69	
$\omega \rightarrow \text{idem}$	5.250		0.00167	0.00044		Ballam,PL30B,421-69	
Threshold	1.667						
<b>54. <math>\gamma p \rightarrow p \pi^+ \pi^- \phi</math></b>							
$\phi \rightarrow [K^+ K^-]$	4.000	0.500	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\phi \rightarrow \text{idem}$	5.150	0.650	0.00060	0.00020		Erbe,PR188,2060-69	
$\phi \rightarrow K^+ K^-$	45.000	25.000	$0.180 \cdot 10^{-4}$	$0.700 \cdot 10^{-5}$	$0.600 \cdot 10^{-5}$	Atkinson,ZPC30,541-86	
...corrected for branching ratio...			$0.364 \cdot 10^{-4}$	$0.142 \cdot 10^{-4}$	$0.122 \cdot 10^{-4}$		
Threshold	2.198						
<b>55. <math>\gamma p \rightarrow p \pi^+ \pi^- A_1^0</math></b>							
$A_1^0 \rightarrow [(\rho^+ / \rho^-) (\pi^- / \pi^+)]$	4.300		0.00130	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	4.300		0.00130	0.00060		Eisenberg,PRL22,669-69	
...corrected for branching ratio...							
Threshold	2.830						
<b>56. <math>\gamma p \rightarrow p \pi^+ \pi^- K^+ K^-</math></b>							
	4.700	0.600	$0.300 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	9.300	1.000	$0.460 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Ballam,PRD5,545-72	
	45.000	25.000	$0.136 \cdot 10^{-3}$	$0.400 \cdot 10^{-5}$	$0.420 \cdot 10^{-4}$	Bingham,PRD8,1277-73	
Threshold	2.124					Atkinson,ZPC30,541-86	
<b>57. <math>\gamma p \rightarrow p \pi^+ \pi^- \text{miss. mass}</math></b>							
	1.443	0.025	0.00110	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.800	0.084	0.01400	0.00200		Ballam,PRD5,545-72	
	4.700	0.141	0.02080	0.00390		Ballam,NPB76,375-74	
	7.500	0.400	0.03000	0.00700		Ballam,NPB76,375-74	
						Ballam,PRL21,1541-68	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>58. <math>\gamma p \rightarrow p \pi^+ \rho^-</math></b>							
$\rho^- \rightarrow [\pi^- \pi^0]$	1.850	0.250	$0.800 \cdot 10^{-3}$	$0.500 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	2.150	0.350	0.00150	0.00100		Erbe,PR188,2060-69	
	2.350	0.250	0.00190	0.00050	0.00029	Struczinski,NPB108,45-76	
	2.925	0.325	0.00170	0.00040	0.00025	Struczinski,NPB108,45-76	
$\rho^- \rightarrow \text{idem}$	3.000	0.500	0.00100	0.00080		Erbe,PR188,2060-69	
	3.625	0.375	$0.700 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.110 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	4.200	0.500	0.00080	0.00050		Eisenberg,PRD5,15-72	
	4.500	0.500	$0.800 \cdot 10^{-3}$	$0.400 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
$\rho^- \rightarrow \text{idem}$	4.650	1.150	0.00080	0.00060		Erbe,PR188,2060-69	
	5.250	0.550	0.00170	0.00050		Eisenberg,PRD5,15-72	
	5.650	0.650	$0.900 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	7.500	0.700	0.00070	0.00040		Eisenberg,PRD5,15-72	
Threshold	1.351						
<b>59. <math>\gamma p \rightarrow p \pi^+ A_2^-</math></b>							
$A_2^- \rightarrow [\rho^0 \pi^-]$	5.250		0.00343	0.00114		(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	2.590					Ballam,PL30B,421-69	
<b>60. <math>\gamma p \rightarrow p 2 \pi^+ \pi^0 2 \pi^-</math></b>							
	2.000	0.100	$0.300 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.200	0.100	$0.600 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.450	0.150	0.00140	0.00030	0.00021	Struczinski,NPB108,45-76	
	2.800	0.500	0.00320	0.00030		Ballam,PRD5,545-72	
	2.925	0.325	0.00270	0.00050	0.00041	Struczinski,NPB108,45-76	
	3.625	0.375	0.00400	0.00050	0.00060	Struczinski,NPB108,45-76	
	4.300		0.00700	0.00070		Eisenberg,PRL22,669-69	
	4.500	0.500	0.00570	0.00060	0.00085	Struczinski,NPB108,45-76	
	4.700	0.600	0.00700	0.00060		Ballam,PRD5,545-72	
	5.200	0.300	0.00860	0.00260		Ballam,PRL21,1541-68	
	5.250		0.01030	0.00060		Ballam,PL30B,421-69	
	5.650	0.650	0.00740	0.00060	0.00111	Struczinski,NPB108,45-76	
	7.500	0.400	0.01320	0.00380		Ballam,PRL21,1541-68	
	9.300	1.000	0.00670	0.00100		Bingham,PRD8,1277-73	
Threshold	0.952						
<b>61. <math>\gamma p \rightarrow p 2 \pi^+ 2 \pi^-</math></b>							
	1.750	0.150	0.00300	0.00100	0.00045	(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.750	0.250	0.00080	0.00020		Struczinski,NPB108,45-76	
	2.000	0.100	0.00290	0.00080	0.00043	Alexander,PRD8,1965-73	
	2.200	0.100	0.00200	0.00060	0.00030	Struczinski,NPB108,45-76	
	2.250	0.250	0.00190	0.00030		Alexander,PRD8,1965-73	
	2.450	0.150	0.00340	0.00060	0.00051	Struczinski,NPB108,45-76	
	2.750	0.250	0.00310	0.00050		Alexander,PRD8,1965-73	
	2.800	0.500	0.00410	0.00030		Ballam,PRD5,545-72	
	2.925	0.325	0.00450	0.00060	0.00067	Struczinski,NPB108,45-76	
	3.500	0.500	0.00550	0.00070		Alexander,PRD8,1965-73	
	3.625	0.375	0.00440	0.00050	0.00066	Struczinski,NPB108,45-76	
	4.300		0.00530	0.00060		Eisenberg,PRL22,669-69	
	4.400	1.900	0.00510	0.00040		Struczinski,NPB108,45-76	
	4.500	0.500	0.00550	0.00050	0.00082	Alexander,PRD8,1965-73	
	4.700	0.600	0.00510	0.00030		Ballam,PRD5,545-72	
	5.200	0.300	0.00550	0.00150		Ballam,PRL21,1541-68	
	5.250	0.250	0.00490	0.00070		Alexander,PRD8,1965-73	
	5.650	0.650	0.00540	0.00040	0.00081	Struczinski,NPB108,45-76	
	5.750	0.250	0.00600	0.00100		Alexander,PRD8,1965-73	
	6.500	0.500	0.00460	0.00090		Alexander,PRD8,1965-73	
	7.100	1.900	0.00440	0.00030		Schacht,NPB81,205-74	
	7.500		0.00570	0.00070		Alexander,NPB68,1-74	
	9.000	1.000	0.00540	0.00100		Alexander,PRD8,1965-73	
	9.300	1.000	0.00410	0.00020		Bingham,PRD8,1277-73	
	12.700	5.300	0.00440	0.00030		Schacht,NPB81,205-74	
Threshold	0.727						

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
62. $\gamma p \rightarrow p 2 \pi^+ 2 \pi^- K^+ K^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	9.300	1.000	$0.600 \cdot 10^{-4}$	$0.200 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
	2.824						
63. $\gamma p \rightarrow p 2 \pi^+ 2 \pi^- \text{miss. mass}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	2.800	0.500	$0.200 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$		Ballam, PRD5, 545-72	
	4.700	0.600	0.00320	0.00070		Ballam, PRD5, 545-72	
64. $\gamma p \rightarrow p 3 \pi^+ \pi^0 3 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	4.500	0.500	$0.400 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	4.700	0.600	$0.300 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	5.650	0.650	$0.700 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.110 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
	9.300	1.000	0.00170	0.00040		Bingham, PRD8, 1277-73	
	1.481						
65. $\gamma p \rightarrow p 3 \pi^+ 3 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	2.800	0.500	$0.500 \cdot 10^{-4}$	$0.250 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	3.625	0.375	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	4.500	0.500	$0.500 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	4.700	0.600	$0.300 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	5.650	0.650	$0.500 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	8.000	2.000	0.00093	0.00030		Davier, PRD1, 790-69	
	9.300	1.000	$0.870 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
	13.000	3.000	0.00090	0.00030		Davier, PRD1, 790-69	
	1.215						
66. $\gamma p \rightarrow p 4 \pi^+ \pi^0 4 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	9.300	1.000	$0.250 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
	2.094						
67. $\gamma p \rightarrow p 4 \pi^+ 4 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	9.300	1.000	$0.800 \cdot 10^{-4}$	$0.200 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
	1.788						
68. $\gamma p \rightarrow p \pi^0$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.160		0.00310	0.00060		Vasilkov, JETP10, 7-60	
	0.163		0.00447	0.00023		Govorkov, YF6, 507-67	
	0.180		0.00980	0.00040		Vasilkov, JETP10, 7-60	
	0.181		0.01030	0.00062		Govorkov, YF6, 507-67	
	0.200		0.02080	0.00080		Vasilkov, JETP10, 7-60	
	0.212		0.03266	0.00126		Govorkov, YF6, 507-67	
	0.220		0.04500	0.00200		Vasilkov, JETP10, 7-60	
	0.220		0.04290	0.00409		Fischer, ZP245, 225-71	
	0.240		0.08100	0.00300		Vasilkov, JETP10, 7-60	
	0.240		0.07000	0.00404		Fischer, ZP245, 225-71	
	0.260		0.13270	0.00226		Fischer, ZP245, 225-71	
	0.270		0.16510	0.00286		Fischer, ZP245, 225-71	
	0.280		0.20580	0.00217		Fischer, ZP245, 225-71	
	0.290		0.24170	0.00266		Fischer, ZP245, 225-71	
	0.300		0.27560	0.00258		Fischer, ZP245, 225-71	
	0.310		0.29790	0.00257		Fischer, ZP245, 225-71	
	0.320		0.31110	0.00236		Fischer, ZP245, 225-71	
	0.330		0.30500	0.00283		Fischer, ZP245, 225-71	
	0.340		0.28060	0.00268		Fischer, ZP245, 225-71	
	0.350		0.25710	0.00302		Fischer, ZP245, 225-71	
	0.360		0.23730	0.00229		Fischer, ZP245, 225-71	
	0.370		0.21610	0.00274		Fischer, ZP245, 225-71	
	0.380		0.18180	0.00239		Fischer, ZP245, 225-71	
	0.390		0.16410	0.00232		Fischer, ZP245, 225-71	
	0.400		0.14020	0.00222		Fischer, ZP245, 225-71	
	0.440	0.005	0.09740	0.00400		Genzel, ZP268, 37-74	
	0.450	0.005	0.08450	0.00490		Genzel, ZP268, 37-74	
	0.460	0.005	0.07960	0.00400		Genzel, ZP268, 37-74	
	0.470	0.005	0.07370	0.00330		Genzel, ZP268, 37-74	
	0.480	0.005	0.06370	0.00340		Genzel, ZP268, 37-74	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
68. $\gamma p \rightarrow p \pi^0$ (Continued)						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	0.490	0.005	0.05730	0.00380		Genzel,ZP268,37-74	
	0.144						
69. $\gamma p \rightarrow p \pi^0 \rho^0$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	1.850	0.250	$0.110 \cdot 10^{-2}$	$0.400 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	2.350	0.250	$0.110 \cdot 10^{-2}$	$0.400 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	2.925	0.325	$0.100 \cdot 10^{-2}$	$0.300 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	7.500	0.700	0.00090	0.00040		Eisenberg,PRD5,15-72	
	1.367						
70. $\gamma p \rightarrow p \pi^0 \omega$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\omega \rightarrow [\pi^+ \pi^- \pi^0]$	39.000	31.000	0.08600	0.02700		Atkinson,NPB243,1-84	
Threshold	1.367						
71. $\gamma p \rightarrow p \pi^0 \phi$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\phi \rightarrow [K^+ K^-]$	39.000	31.000	$0.600 \cdot 10^{-5}$	$0.300 \cdot 10^{-5}$		Atkinson,NPB231,1-84	
Threshold	1.863						
72. $\gamma p \rightarrow p \pi^0 K^+ K^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	39.000	31.000	$0.800 \cdot 10^{-4}$	$0.500 \cdot 10^{-5}$	$0.200 \cdot 10^{-4}$	Atkinson,NPB231,1-84	
	1.794						
73. $\gamma p \rightarrow p \pi^- \rho^+$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\rho^+ \rightarrow [\pi^+ \pi^0]$	1.850	0.250	0.00180	0.00050	0.00027	Struczinski,NPB108,45-76	
	2.150	0.350	0.00210	0.00100		Erbe,PR188,2060-69	
	2.350	0.250	0.00200	0.00040	0.00030	Struczinski,NPB108,45-76	
	2.925	0.325	0.00220	0.00040	0.00033	Struczinski,NPB108,45-76	
$\rho^+ \rightarrow \text{idem}$	3.000	0.500	0.00260	0.00090		Erbe,PR188,2060-69	
	3.625	0.375	0.00180	0.00040	0.00027	Struczinski,NPB108,45-76	
	4.200	0.500	0.00180	0.00050		Eisenberg,PRD5,15-72	
	4.500	0.500	$0.120 \cdot 10^{-2}$	$0.400 \cdot 10^{-3}$	$0.180 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
$\rho^+ \rightarrow \text{idem}$	4.650	1.150	0.00140	0.00060		Erbe,PR188,2060-69	
	5.250	0.550	0.00190	0.00050		Eisenberg,PRD5,15-72	
	5.650	0.650	$0.130 \cdot 10^{-2}$	$0.300 \cdot 10^{-3}$	$0.190 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
Threshold	7.500	0.700	0.00110	0.00040		Eisenberg,PRD5,15-72	
	1.351						
74. $\gamma p \rightarrow p \eta$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	0.730	0.020	0.01200	0.00320		Erbe,PR175,1669-68	
	0.730		0.00640	0.00130	0.00026	Delcourt,PL29B,75-69	
	0.750		0.01320	0.00080	0.00053	Delcourt,PL29B,75-69	
	0.775	0.025	0.01720	0.00300		Erbe,PR175,1669-68	
	0.805	0.095	0.01040	0.00270		Crouch,PR169,1081-68	
	0.825	0.025	0.01530	0.00280		Erbe,PR175,1669-68	
	0.840		0.01240	0.00060	0.00050	Delcourt,PL29B,75-69	
	0.870		0.01160	0.00080	0.00046	Delcourt,PL29B,75-69	
	0.875	0.025	0.01050	0.00300		Erbe,PR175,1669-68	
	0.880		0.01140	0.00100	0.00046	Delcourt,PL29B,75-69	
	0.950	0.050	0.00600	0.00190		Erbe,PR175,1669-68	
	1.000	0.100	0.00300	0.00150		Crouch,PR169,1081-68	
	1.050	0.050	0.00460	0.00180		Erbe,PR175,1669-68	
	1.200	0.100	0.00290	0.00130		Erbe,PR175,1669-68	
	1.400	0.100	0.00200	0.00130		Erbe,PR175,1669-68	
	1.850	0.250	$0.600 \cdot 10^{-3}$	$0.400 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.350	0.250	$0.300 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.500	1.000	0.00058	0.00037		Erbe,PR175,1669-68	
$\eta \rightarrow [2\gamma]$	4.000	0.200	$0.462 \cdot 10^{-3}$	$0.128 \cdot 10^{-3}$		Bellenger,PRL21,1205-68	
	5.150	1.150	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
Threshold	0.708						

IX.2  $\gamma$ : Cross section data

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>75. <math>\gamma p \rightarrow p \rho^0</math></b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.050	0.050	0.00549	0.00205		Erbe,PR175,1669-68	
	1.150	0.050	0.01124	0.00220		Erbe,PR175,1669-68	
	1.200	0.100	0.02110	0.00500		Crouch,PR146,994-66	
	1.250	0.050	0.01440	0.00230		Erbe,PR175,1669-68	
	1.350	0.050	0.01834	0.00270		Erbe,PR175,1669-68	
	1.400	0.100	0.02980	0.00710		Crouch,PR146,994-66	
	1.500	0.100	0.02200	0.00470		Erbe,PR175,1669-68	
	1.600	0.200	0.01789	0.00444		Erbe,PR175,1669-68	
	1.650	0.150	0.03750	0.00500		Crouch,PR146,994-66	
	1.700	0.100	0.02510	0.00430		Erbe,PR175,1669-68	
	1.750	0.150	0.02180	0.00140	0.00327	Struczinski,NPB108,45-76	
	1.900	0.100	0.02150	0.00300		Erbe,PR175,1669-68	
	2.000	0.100	0.02210	0.00170	0.00332	Struczinski,NPB108,45-76	
	2.100	0.100	0.01800	0.00270		Erbe,PR175,1669-68	
	2.150	0.350	0.03320	0.00410		Crouch,PR146,994-66	
	2.200	0.100	0.02220	0.00160	0.00333	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow [\pi^+ \pi^-]$	2.250	0.250	0.02210	0.00140		Eisenberg,PRD5,15-72	
	2.300	0.100	0.01550	0.00200		Erbe,PR175,1669-68	
	2.450	0.150	0.01970	0.00110	0.00295	Struczinski,NPB108,45-76	
	2.500	0.100	0.01680	0.00200		Erbe,PR175,1669-68	
	2.650	0.850	0.02056	0.00328		Erbe,PR175,1669-68	
	2.700	0.100	0.01960	0.00210		Erbe,PR175,1669-68	
$\rho^0 \rightarrow \text{idem}$	2.750	0.250	0.02140	0.00160		Eisenberg,PRD5,15-72	
$\rho^0 \rightarrow \text{idem}$	2.800	0.500	0.01861	0.00110		Ballam,PRD5,545-72	
	2.900	0.100	0.01840	0.00200		Erbe,PR175,1669-68	
	2.925	0.325	0.01850	0.00110	0.00277	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	3.000	1.000	0.01920	0.00230		Davier,PRD1,790-69	
	3.250	0.250	0.01650	0.00130		Erbe,PR175,1669-68	
$\rho^0 \rightarrow \text{idem}$	3.350	0.350	0.01870	0.00160		Eisenberg,PRD5,15-72	
	3.625	0.375	0.01770	0.00100	0.00265	Struczinski,NPB108,45-76	
	3.750	0.250	0.01660	0.00130		Erbe,PR175,1669-68	
$\rho^0 \rightarrow \text{idem}$	4.000	0.500	0.01752	0.00366		Erbe,PR175,1669-68	
	4.000	0.500	0.01640	0.00200		Erbe,PL27B,54-68	
	4.050	0.850	0.01460	0.00180		Blechsch.,NCA52,1348-67	
$\rho^0 \rightarrow \text{idem}$	4.150	1.650	0.01700	0.00070		Erbe,NC46A,795-66	
$\rho^0 \rightarrow \text{idem}$	4.200	0.500	0.01620	0.00170		Eisenberg,PRD5,15-72	
	4.250	0.250	0.01600	0.00130		Erbe,PR175,1669-68	
	4.300	0.700	0.01590	0.00190		Eisenberg,NPB42,349-72	
	4.500	0.500	0.01890	0.00200	0.00283	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	4.700	0.600	0.01450	0.00100		Ballam,PRD5,545-72	
	4.750	0.250	0.01690	0.00140		Erbe,PR175,1669-68	
	5.150	1.150	0.01520	0.00140	0.00228	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	5.200	0.300	0.01600	0.00250		Ballam,PRL21,1541-68	
$\rho^0 \rightarrow \text{idem}$	5.250	0.550	0.01540	0.00140		Eisenberg,PRD5,15-72	
	5.400	0.400	0.01500	0.00220		Erbe,PR175,1669-68	
	5.500		0.01980	0.00220		Anderson,PRD1,27-70	
	5.650	0.650	0.01740	0.00200	0.00261	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow \text{idem}$	5.650	0.950	0.01140	0.00150		Bodenkamp,PL133B,275-83	
	6.000	2.000	0.01560	0.00170		Davier,PRD1,790-69	
	6.000		0.01800	0.00180		Anderson,PRD1,27-70	
	6.250	0.750	0.01230	0.00090		Park,NPB36,404-72	
	6.500		0.01630	0.00160		Anderson,PRD1,27-70	
	6.850		0.01390	0.00200		Gottfried,PRL22,374-69	
	7.000	2.000	0.01210	0.00110		Park,NPB36,404-72	
	7.160		0.01530	0.00220		Gottfried,PRL22,374-69	
$\rho^0 \rightarrow \text{idem}$	7.500	0.700	0.01370	0.00130		Eisenberg,PRD5,15-72	
	8.800		0.01650	0.00220		Gottfried,PRL22,374-69	
	10.500	1.500	0.01170	0.00100		Park,NPB36,404-72	
	11.500		0.01340	0.00080		Anderson,PRD1,27-70	
	12.250		0.01320	0.00080		Anderson,PRD1,27-70	
	13.000		0.01290	0.00080		Anderson,PRD1,27-70	
	13.750		0.01300	0.00070		Anderson,PRD1,27-70	

EA = Statistical error only

EA

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>75. <math>\gamma p \rightarrow p \rho^0</math> (Continued)</b>							
	14.500		0.01200	0.00070		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	15.000	3.000	0.01160	0.00100		Anderson, PRD1,27-70	
	15.250		0.01250	0.00070		Park, NPB36,404-72	
	16.000		0.01220	0.00070		Anderson, PRD1,27-70	
	16.900		0.01250	0.00070		Anderson, PRD1,27-70	
	17.800		0.01190	0.00060		Anderson, PRD1,27-70	
	20.000		0.01080	0.00110		Abe, PRD32,2869-85	
$\rho^0 \rightarrow \text{idem}$	35.000	5.000	0.00884	0.00044	0.00088	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	42.000	12.000	0.01068	0.00067	0.00107	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	47.000	7.000	0.00990	0.00049	0.00099	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	53.000	7.000	0.00950	0.00056	0.00095	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	71.000	11.000	0.00982	0.00056	0.00098	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	79.000	11.000	0.00824	0.00047	0.00082	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	106.000	16.000	0.00922	0.00052	0.00092	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	117.000	17.000	0.00859	0.00049	0.00086	Egloff, PRL43,657-79	
$\rho^0 \rightarrow \text{idem}$	157.000	23.000	0.00975	0.00056	0.00098	Egloff, PRL43,657-79	
Threshold	1.109						
<b>76. <math>\gamma p \rightarrow p \rho^0</math> (Backward)</b>							
	1.750	0.150	0.00280	0.00080	0.00042	(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.000	0.100	$0.110 \cdot 10^{-2}$	$0.500 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$	Struczinski, NPB108,45-76	
	2.200	0.100	$0.800 \cdot 10^{-3}$	$0.700 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski, NPB108,45-76	
	2.450	0.150	$0.700 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	Struczinski, NPB108,45-76	
	2.925	0.325	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$	Struczinski, NPB108,45-76	
	3.625	0.375	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$	Struczinski, NPB108,45-76	
Threshold	1.109						
<b>77. <math>\gamma p \rightarrow p \omega</math></b>							
	1.255	0.145	0.00670	0.00110		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.305	0.195	0.00730	0.00160		Erbe, PR175,1669-68	
	1.600	0.200	0.00751	0.00097		Crouch, PR155,1468-67	
	1.650	0.150	0.00630	0.00190		Erbe, PR175,1669-68	
	1.850	0.250	0.00760	0.00150	0.00114	Struczinski, NPB108,45-76	
	1.950	0.150	0.00737	0.00120		Erbe, PR175,1669-68	
	2.150	0.350	0.00550	0.00100		Crouch, PR155,1468-67	
	2.150	0.350	0.00594	0.00238		Erbe, PR175,1669-68	
	2.300	0.200	0.00680	0.00102		Erbe, PR175,1669-68	
	2.350	0.250	0.00530	0.00050	0.00079	Struczinski, NPB108,45-76	
	2.750	0.250	0.00545	0.00100		Erbe, PR175,1669-68	
$\omega \rightarrow [\pi^+ \pi^- \pi^0]$							
	2.800	0.150	0.00530	0.00050		Ballam, PRD7,3150-73	
	2.925	0.325	0.00390	0.00030		Struczinski, NPB108,45-76	
$\omega \rightarrow \text{idem}$	3.000	0.500	0.00534	0.00089		Erbe, PL27B,54-68	
	3.150	0.350	0.00420	0.00030		Barber, ZPC26,343-84	
$\omega \rightarrow \text{idem}$	3.250	0.250	0.00423	0.00086		Erbe, PR175,1669-68	
	3.500	1.500	0.00390	0.00090		Davier, PRD1,790-69	
	3.625	0.375	0.00180	0.00020	0.00027	Struczinski, NPB108,45-76	
	3.850	0.350	$0.250 \cdot 10^{-2}$	$0.100 \cdot 10^{-3}$		Barber, ZPC26,343-84	
	4.000	0.500	0.00360	0.00061		Erbe, PR175,1669-68	
$\omega \rightarrow \text{idem}$	4.000	0.500	0.00400	0.00067		Erbe, PL27B,54-68	
	4.150	1.650	0.00345	0.00118		Erbe, PR175,1669-68	
	4.200	0.500	0.00290	0.00040		Eisenberg, PRD5,15-72	
	4.250	1.750	0.00320	0.00060		Crouch, PR155,1468-67	
$\omega \rightarrow \text{idem}$	4.300		0.00280	0.00050		Eisenberg, PRL22,669-69	
	4.500	0.300	$0.220 \cdot 10^{-2}$	$0.100 \cdot 10^{-3}$		Barber, ZPC26,343-84	
$\omega \rightarrow \text{idem}$	4.700	0.450	0.00300	0.00030		Ballam, PRD7,3150-73	
	5.150	0.650	0.00315	0.00066		Erbe, PR175,1669-68	
$\omega \rightarrow \text{idem}$	5.150	0.650	0.00345	0.00078		Erbe, PL27B,54-68	
	5.250	0.550	0.00230	0.00040		Eisenberg, PRD5,15-72	
	5.650	0.650	0.00200	0.00050	0.00030	Struczinski, NPB108,45-76	
	7.500	0.700	0.00200	0.00030		Eisenberg, PRD5,15-72	
$\omega \rightarrow \text{idem}$	9.300	0.600	0.00190	0.00030		Ballam, PRD7,3150-73	
$\omega \rightarrow \text{idem}$	10.500	5.500	0.00260	0.00070		Davier, PRD1,790-69	

IX.2  $\gamma$ : Cross section data

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>77. <math>\gamma p \rightarrow p \omega</math> (Continued)</b>							
$\omega \rightarrow [\pi^+ \pi^- \pi^0]$							
	39.000	31.000	$0.101 \cdot 10^{-2}$	$0.150 \cdot 10^{-4}$	$0.290 \cdot 10^{-3}$	Atkinson,NPB231,15-84	
$\omega \rightarrow [\pi^0 \gamma]$	53.000	7.000	$0.117 \cdot 10^{-2}$	$0.180 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Egloff,PRL43,1545-79	
$\omega \rightarrow \text{idem}$	71.000	11.000	$0.104 \cdot 10^{-2}$	$0.160 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Egloff,PRL43,1545-79	
$\omega \rightarrow \text{idem}$	95.000	27.000	$0.111 \cdot 10^{-2}$	$0.130 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Egloff,PRL43,1545-79	
$\omega \rightarrow \text{idem}$	140.000	40.000	$0.108 \cdot 10^{-2}$	$0.180 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Egloff,PRL43,1545-79	
Threshold	1.111						
<b>78. <math>\gamma p \rightarrow p \eta'</math></b>							
	1.685	0.215	0.00120	0.00050		Erbe,PR175,1669-68	
	2.200	0.300	0.00100	0.00045		Erbe,PR175,1669-68	
	2.350	0.250	$0.300 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.925	0.325	$0.300 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	3.300		$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Erbe,PR175,1669-68	
	3.625	0.375	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	5.000	1.000	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
Threshold	1.444						
<b>79. <math>\gamma p \rightarrow p S^*</math></b>							
$S^* \rightarrow K^+ K^-$	5.650	1.050	$0.270 \cdot 10^{-5}$	$0.150 \cdot 10^{-5}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
...corrected for branching ratio...			$0.245 \cdot 10^{-4}$	$0.140 \cdot 10^{-4}$		Fries,NPB143,408-78	
Threshold	1.481						
<b>80. <math>\gamma p \rightarrow p \phi</math></b>							
	2.040	0.460	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.800		$0.330 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$		Erbe,PR175,1669-68	
	2.800	0.150	$0.400 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Ballam,LIVERPOOL CONF-69	
	3.000	0.500	$0.400 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$		Ballam,PRD7,3150-73	
$\phi \rightarrow [(K^+ / K^0_s) (K^- / K^0_l)]$	3.000	0.500	$0.490 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$		Erbe,PL27B,54-68	
	3.300	0.500	$0.470 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$		Barber,ZPC12,1-82	
	4.300	0.500	$0.420 \cdot 10^{-3}$	$0.200 \cdot 10^{-4}$		Barber,ZPC12,1-82	
	4.650	1.150	$0.450 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$		Erbe,PR175,1669-68	
$\phi \rightarrow \text{idem}$	4.650	1.150	$0.540 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$		Erbe,PL27B,54-68	
	4.700	0.450	$0.410 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$		Ballam,PRD7,3150-73	
$\phi \rightarrow K^+ K^-$	5.650	1.050	$0.250 \cdot 10^{-3}$	$0.200 \cdot 10^{-4}$		Fries,NPB143,408-78	
...corrected for branching ratio...			$0.505 \cdot 10^{-3}$	$0.432 \cdot 10^{-4}$			
	9.300	0.600	$0.550 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$		Ballam,PRD7,3150-73	
$\phi \rightarrow \text{idem}$	28.000	8.000	$0.240 \cdot 10^{-3}$	$0.600 \cdot 10^{-5}$	$0.410 \cdot 10^{-4}$	Aston,NPB172,1-80	
...corrected for branching ratio...			$0.485 \cdot 10^{-3}$	$0.190 \cdot 10^{-4}$	$0.841 \cdot 10^{-4}$		
$\phi \rightarrow [K^+ K^-]$	35.000	5.000	$0.506 \cdot 10^{-3}$	$0.900 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow [\pi^+ \pi^- \pi^0]$	39.000	31.000	$0.608 \cdot 10^{-3}$	$0.380 \cdot 10^{-4}$	$0.170 \cdot 10^{-3}$	Atkinson,NPB231,15-84	
$\phi \rightarrow [K^+ K^-]$	42.000	12.000	$0.568 \cdot 10^{-3}$	$0.910 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	47.000	7.000	$0.546 \cdot 10^{-3}$	$0.890 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	53.000	7.000	$0.625 \cdot 10^{-3}$	$0.630 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	71.000	11.000	$0.646 \cdot 10^{-3}$	$0.650 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	79.000	11.000	$0.648 \cdot 10^{-3}$	$0.520 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	106.000	16.000	$0.661 \cdot 10^{-3}$	$0.530 \cdot 10^{-5}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	117.000	17.000	$0.630 \cdot 10^{-3}$	$0.101 \cdot 10^{-4}$	$0.300 \cdot 10^{-4}$	Egloff,PRL43,657-79	
$\phi \rightarrow \text{idem}$	157.000	23.000	$0.740 \cdot 10^{-3}$	$0.920 \cdot 10^{-5}$	$0.400 \cdot 10^{-4}$	Egloff,PRL43,657-79	
Threshold	1.572						
<b>81. <math>\gamma p \rightarrow p B^0</math></b>							
$B^0 \rightarrow \omega \pi^0$	2.800	0.084	0.00120	0.00070		(Cross section units: $10^{-27} \text{ cm}^2$ )	
...corrected for branching ratio...			0.00120	0.00070		Ballam,NPB76,375-74	
$B^0 \rightarrow \text{idem}$	4.700	0.141	0.00150	0.00060		Ballam,NPB76,375-74	
...corrected for branching ratio...			0.00150	0.00060			
$B^0 \rightarrow \text{idem}$	9.300	0.279	0.00100	0.00030		Ballam,NPB76,375-74	
...corrected for branching ratio...			0.00100	0.00030			
Threshold	2.031						

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
82. $\gamma p \rightarrow p f$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	2.136					Erbe, PR175, 1669-68	
	3.000	0.500	0.00090	0.00045		Erbe, PR175, 1669-68	
	4.000	0.500	0.00040	0.00030			
83. $\gamma p \rightarrow p f'$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	2.750	4.650	1.150	$0.150 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Erbe, PR175, 1669-68	
84. $\gamma p \rightarrow p p' \circ$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$p' \circ \rightarrow \omega \pi^0$ & ( $\omega \rightarrow \pi^+ \pi^- \pi^0$ )							
Threshold	4.000					Barber, ZPC4, 169-79	
$p' \circ \rightarrow (2\pi^+ 2\pi^-) / (\rho^0 \pi^+ \pi^-)$						Schacht, NPB81, 205-74	
Threshold	4.400	7.100	1.900	$0.130 \cdot 10^{-2}$	$0.100 \cdot 10^{-3}$	Schacht, NPB81, 205-74	
$p' \circ \rightarrow \text{idem}$						Schacht, NPB81, 205-74	
$p' \circ \rightarrow \pi^+ \pi^- \text{ miss. mass}$							
Threshold	9.300	12.700	0.279	0.00400	0.00100	Ballam, NPB76, 375-74	
$p' \circ \rightarrow (2\pi^+ 2\pi^-) / (\rho^0 \pi^+ \pi^-)$						Schacht, NPB81, 205-74	
Threshold	12.700	15.300		0.00160	0.00020		
$p' \circ \rightarrow \rho^0 \pi^+ \pi^-$						Aston, NPB189, 15-81	
$p' \circ \rightarrow 2\pi^+ 2\pi^-$						Aston, PL92B, 215-80	
Threshold	40.000	45.000	30.000	$0.540 \cdot 10^{-3}$	$0.170 \cdot 10^{-3}$		
	2.936						
85. $\gamma p \rightarrow p \omega_{1670}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\omega_{1670} \rightarrow \pi^+ \pi^- \pi^0$							
Threshold	3.150	39.000	31.000	$0.100 \cdot 10^{-3}$	$0.200 \cdot 10^{-4}$	Atkinson, NPB231, 15-84	
86. $\gamma p \rightarrow p \phi'$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\phi' \rightarrow K^+ K^-$							
Threshold	3.197	45.000	25.000	$0.800 \cdot 10^{-5}$	$0.300 \cdot 10^{-5}$	Aston, PL104B, 231-81	
87. $\gamma p \rightarrow p g^0$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$g^0 \rightarrow [\pi^+ \pi^-]$						Eisenberg, PRL22, 669-69	
Threshold	4.300	45.000	25.000	$0.00358$	$0.00147$		
$g^0 \rightarrow \pi^+ \pi^-$				$0.510 \cdot 10^{-4}$	$0.220 \cdot 10^{-4}$	Atkinson, ZPC30, 531-86	
...corrected for branching ratio...				$0.214 \cdot 10^{-3}$	$0.932 \cdot 10^{-4}$		
$g^0 \rightarrow 2\pi^+ 2\pi^-$				$0.147 \cdot 10^{-3}$	$0.420 \cdot 10^{-4}$	Atkinson, ZPC30, 531-86	
$g^0 \rightarrow \rho^+ \rho^-$				$0.180 \cdot 10^{-4}$	$0.160 \cdot 10^{-4}$	Atkinson, ZPC30, 531-86	
Threshold	3.211						
88. $\gamma p \rightarrow p \psi$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	8.207	150.000	150.000	$0.180 \cdot 10^{-4}$	$0.200 \cdot 10^{-5}$	Binkley, PRL48, 73-82	
89. $\gamma p \rightarrow p K^+ K^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	1.508	1.790	0.210	$0.210 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$	Erbe, PR188, 2060-69	
	2.250	2.250	0.250	$0.470 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Erbe, PR188, 2060-69	
	2.800	2.800	0.500	$0.100 \cdot 10^{-2}$	$0.100 \cdot 10^{-3}$	Ballam, PRD5, 545-72	
	3.250	3.250	0.250	0.00106	0.00023	Erbe, PR188, 2060-69	
	3.750	3.750	0.250	$0.640 \cdot 10^{-3}$	$0.190 \cdot 10^{-3}$	Erbe, PR188, 2060-69	
	4.250	4.250	0.250	0.00097	0.00026	Erbe, PR188, 2060-69	
	4.700	4.700	0.600	$0.700 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	Ballam, PRD5, 545-72	
	5.400	5.400	0.400	0.00092	0.00026	Erbe, PR188, 2060-69	
	9.300	9.300	1.000	$0.580 \cdot 10^{-3}$	$0.500 \cdot 10^{-4}$	Bingham, PRD8, 1277-73	
	28.000	28.000	8.000	$0.160 \cdot 10^{-3}$	$0.100 \cdot 10^{-4}$	Aston, NPB172, 1-80	
Threshold					$-0.200 \cdot 10^{-4}$		
90. $\gamma p \rightarrow p K^+ K^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$K^* \rightarrow K^- \pi^0$							
Threshold	2.409	39.000	31.000	$0.100 \cdot 10^{-4}$	$0.300 \cdot 10^{-5}$	Atkinson, NPB231, 1-84	
...corrected for branching ratio...				$0.300 \cdot 10^{-4}$	$0.901 \cdot 10^{-5}$		

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>91. <math>\gamma p \rightarrow p K^- K^{*+}_{890}</math></b>							
$K^{*+}_{890} \rightarrow K^+ \pi^0$	39.000	31.000 - 19.000	$0.130 \cdot 10^{-4}$	$0.300 \cdot 10^{-5}$	$0.400 \cdot 10^{-5}$	Atkinson,NPB231,1-84	
...corrected for branching ratio...			$0.390 \cdot 10^{-4}$	$0.900 \cdot 10^{-5}$	$0.120 \cdot 10^{-4}$		
Threshold	2.409						
<b>92. <math>\gamma p \rightarrow p K^0_S K^{*0}_{890}</math></b>							
$K^{*0}_{890} \rightarrow (K^+ / K^-)(\pi^- / \pi^+)$	39.000	31.000 - 19.000	$0.160 \cdot 10^{-4}$	$0.400 \cdot 10^{-5}$	$0.800 \cdot 10^{-5}$	Atkinson,NPB231,1-84	
...corrected for branching ratio...			$0.240 \cdot 10^{-4}$	$0.600 \cdot 10^{-5}$	$0.120 \cdot 10^{-4}$		
Threshold	2.431						
<b>93. <math>\gamma p \rightarrow 2 p \bar{p}</math></b>							
	4.700	0.600	$0.600 \cdot 10^{-4}$	$0.300 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	4.921	0.181	$0.758 \cdot 10^{-4}$	$0.134 \cdot 10^{-4}$		Ballam,PRD5,545-72	
	5.283	0.181	$0.821 \cdot 10^{-4}$	$0.167 \cdot 10^{-4}$		Bodenkamp,NPB255,717-85	EL
	5.645	0.181	$0.650 \cdot 10^{-4}$	$0.135 \cdot 10^{-4}$		Bodenkamp,NPB255,717-85	EL
	6.007	0.181	$0.896 \cdot 10^{-4}$	$0.175 \cdot 10^{-4}$		Bodenkamp,NPB255,717-85	EL
	6.369	0.181	$0.849 \cdot 10^{-4}$	$0.157 \cdot 10^{-4}$		Bodenkamp,NPB255,717-85	EL
	9.300	1.000	$0.900 \cdot 10^{-4}$	$0.200 \cdot 10^{-4}$		Bingham,PRD8,1277-73	
	57.000	13.000	$0.200 \cdot 10^{-4}$	$0.800 \cdot 10^{-5}$		Aston,PL93B,517-80	
Threshold	3.751						
<b>94. <math>\gamma p \rightarrow n \pi^+</math></b>							
	0.220		0.12598	0.00190		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.240		0.15022	0.00095		Fischer,ZP253,38-72	
	0.250		0.15650	0.00400		Fujii,NPB120,395-77	
	0.260		0.18850	0.00320		Fujii,NPB120,395-77	
	0.270		0.20320	0.00400		Fujii,NPB120,395-77	
	0.280		0.21460	0.00380		Fujii,NPB120,395-77	
	0.290		0.23130	0.00410		Fujii,NPB120,395-77	
	0.300		0.24620	0.00310		Fujii,NPB120,395-77	
	0.310		0.25190	0.00400		Fujii,NPB120,395-77	
	0.320		0.24700	0.00510		Fujii,NPB120,395-77	
	0.320		0.23389	0.00140		Fischer,ZP253,38-72	
	0.325		0.22743	0.00366		Fischer,ZP253,38-72	
	0.330		0.24170	0.00310		Fujii,NPB120,395-77	
	0.340		0.22400	0.00310		Fujii,NPB120,395-77	
	0.350		0.20370	0.00280		Fujii,NPB120,395-77	
	0.360		0.17558	0.00104		Fischer,ZP253,38-72	
	0.370		0.17880	0.00360		Fujii,NPB120,395-77	
	0.375		0.15270	0.00180		Fischer,ZP253,38-72	
	0.380		0.15930	0.00240		Fujii,NPB120,395-77	
	0.390		0.13910	0.00240		Fujii,NPB120,395-77	
	0.400		0.13470	0.00270		Fujii,NPB120,395-77	
	0.410		0.12490	0.00240		Fujii,NPB120,395-77	
	0.420		0.11790	0.00240		Fujii,NPB120,395-77	
	0.430		0.11530	0.00220		Fujii,NPB120,395-77	
	0.440		0.10740	0.00200		Fujii,NPB120,395-77	
	0.450		0.10940	0.00210		Fujii,NPB120,395-77	
	0.460		0.10140	0.00190		Fujii,NPB120,395-77	
	0.470		0.10330	0.00190		Fujii,NPB120,395-77	
	0.490		0.09720	0.00100		Fujii,NPB120,395-77	
	0.515		0.09370	0.00140		Fujii,NPB120,395-77	
	0.540		0.09490	0.00120		Fujii,NPB120,395-77	
	0.565		0.09500	0.00100		Fujii,NPB120,395-77	
	0.590		0.09360	0.00130		Fujii,NPB120,395-77	
	0.615		0.09530	0.00170		Fujii,NPB120,395-77	
	0.640		0.09970	0.00170		Fujii,NPB120,395-77	
	0.665		0.10870	0.00210		Fujii,NPB120,395-77	
	0.690		0.11170	0.00150		Fujii,NPB120,395-77	
	0.715		0.11210	0.00190		Fujii,NPB120,395-77	

EL = Errors include both statistical and systematic contributions

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>94. <math>\gamma p \rightarrow n \pi^+</math> (Continued)</b>							
	0.740		0.10250	0.00190		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.765		0.08910	0.00160		Fujii,NPB120,395-77	
	0.790		0.07170	0.00130		Fujii,NPB120,395-77	
Threshold	0.152					Fujii,NPB120,395-77	
<b>95. <math>\gamma p \rightarrow n \pi^+ \rho^0</math></b>							
	1.850	0.250	$0.600 \cdot 10^{-4}$	$0.500 \cdot 10^{-4}$	$0.100 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.350	0.250	$0.154 \cdot 10^{-2}$	$0.150 \cdot 10^{-3}$	$0.230 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	2.925	0.325	0.00132	0.00025	0.00020	Struczinski,NPB108,45-76	
	3.625	0.375	$0.840 \cdot 10^{-3}$	$0.240 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	4.200	0.500	0.00120	0.00070		Eisenberg,PRD5,15-72	
	4.500	0.500	$0.710 \cdot 10^{-3}$	$0.400 \cdot 10^{-3}$	$0.110 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
$\rho^0 \rightarrow [\pi^+ \pi^-]$	5.250		0.00080	0.00040		Ballam,PL30B,421-69	
	5.650	0.650	$0.950 \cdot 10^{-3}$	$0.450 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	7.500	0.700	0.00200	0.00060		Eisenberg,PRD5,15-72	
Threshold	1.380						
<b>96. <math>\gamma p \rightarrow n 2 \pi^+ \pi^0 \pi^-</math></b>							
	4.000		0.01000	0.00100		(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	0.722					Erbe,PR188,2060-69	
<b>97. <math>\gamma p \rightarrow n 2 \pi^+ 2 \pi^0 \pi^-</math></b>							
	4.000		0.00180	0.00030		(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	0.947					Erbe,PR188,2060-69	
<b>98. <math>\gamma p \rightarrow n 2 \pi^+ \pi^-</math></b>							
	1.443	0.025	0.00560	0.00100		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.750	0.150	0.00800	0.00080	0.00120	Ballam,PRD5,545-72	
	2.000	0.100	0.01140	0.00110	0.00171	Struczinski,NPB108,45-76	
	2.200	0.100	0.00910	0.00100	0.00136	Struczinski,NPB108,45-76	
	2.450	0.150	0.00950	0.00070	0.00142	Struczinski,NPB108,45-76	
	2.800	0.500	0.01010	0.00130		Ballam,PRD5,545-72	
	2.925	0.325	0.01130	0.00080	0.00169	Struczinski,NPB108,45-76	
	3.625	0.375	0.00980	0.00090	0.00147	Struczinski,NPB108,45-76	
	4.200	0.500	0.00750	0.00150		Eisenberg,PRD5,15-72	
	4.300		0.00750	0.00150		Eisenberg,PRD5,15-72	
	4.500	0.500	0.00790	0.00130	0.00118	Struczinski,NPB108,45-76	
	4.700	0.600	0.00720	0.00200		Ballam,PRD5,545-72	
	5.200	0.300	0.01120	0.00240		Ballam,PRL21,1541-68	
	5.250	0.550	0.00460	0.00140		Eisenberg,PRD5,15-72	
	5.650	0.650	0.00770	0.00130	0.00115	Struczinski,NPB108,45-76	
	7.500	0.700	0.00400	0.00120		Eisenberg,PRD5,15-72	
	9.300	1.000	0.00320	0.00070		Bingham,PRD8,1277-73	
Threshold	0.516						
<b>99. <math>\gamma p \rightarrow n 2 \pi^+ \pi^-</math> miss. mass</b>							
	1.443	0.025	0.00090	0.00050		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.800	0.500	0.01120	0.00090		Ballam,PRD5,545-72	
	4.700	0.600	0.01630	0.00230		Ballam,PRD5,545-72	
	7.500	0.400	0.01400	0.00600		Ballam,PRL21,1541-68	
<b>100. <math>\gamma p \rightarrow n 3 \pi^+ 2 \pi^-</math></b>							
	2.450	0.150	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	2.800	0.500	$0.400 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$		Ballam,PRD5,545-72	
	2.925	0.325	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	3.625	0.375	0.00150	0.00030	0.00023	Struczinski,NPB108,45-76	
	4.300		0.00390	0.00050		Eisenberg,PRL22,669-69	
	4.500	0.500	0.00230	0.00030	0.00035	Struczinski,NPB108,45-76	
	4.700	0.600	0.00160	0.00050		Ballam,PRD5,545-72	
	5.250		0.00470	0.00040		Ballam,PL30B,421-69	
	5.650	0.650	0.00220	0.00030	0.00033	Struczinski,NPB108,45-76	
	7.500	0.400	0.00340	0.00130		Ballam,PRL21,1541-68	
	9.300	1.000	0.00180	0.00100		Bingham,PRD8,1277-73	
Threshold	0.964						

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
101. $\gamma p \rightarrow n 3 \pi^+ 2 \pi^- \text{miss. mass}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.800	0.500	$0.200 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	4.700	0.600	0.00160	0.00030		Ballam, PRD5, 545-72	
102. $\gamma p \rightarrow n 4 \pi^+ 3 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	4.700	0.600	$0.700 \cdot 10^{-4}$	$0.400 \cdot 10^{-4}$		Ballam, PRD5, 545-72	
	5.650	0.650	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	9.300	1.000	0.00090	0.00040		Bingham, PRD8, 1277-73	
Threshold	1.495						
103. $\gamma p \rightarrow n 5 \pi^+ 4 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	9.300	1.000	$0.100 \cdot 10^{-3}$	$0.300 \cdot 10^{-4}$		Bingham, PRD8, 1277-73	
Threshold	2.110						
104. $\gamma p \rightarrow n \rho^+$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.150	0.350	0.00159	0.00032		Barber, ZPC2, 1-79	
	3.850	0.350	$0.940 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$		Barber, ZPC2, 1-79	
	4.500	0.300	$0.560 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$		Barber, ZPC2, 1-79	
Threshold	1.089						
105. $\gamma p \rightarrow n A_2^+$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.625	0.375	$0.700 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.110 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
$A_2^+ \rightarrow 2\pi^+\pi^-$	4.200	0.500	0.00080	0.00030		Eisenberg, PRD5, 15-72	
...corrected for branching ratio...			0.00228	0.00086			
$A_2^+ \rightarrow \text{idem}$	5.250		0.00040	0.00020		Ballam, PL30B, 421-69	
...corrected for branching ratio...			0.00114	0.00057			
$A_2^+ \rightarrow \text{idem}$	5.250	0.550	0.00060	0.00030		Eisenberg, PRD5, 15-72	
...corrected for branching ratio...			0.00171	0.00086			
Threshold	2.229						
106. $\gamma p \rightarrow \Delta^{++}_{1236} \pi^+ \pi^0 2 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	2.925	0.325	$0.100 \cdot 10^{-2}$	$0.200 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
$\Delta^{++}_{1236} \rightarrow [p \pi^+]$			0.00240	0.00080		Eisenberg, PRL22, 669-69	
	4.300		0.00130	0.00030	$0.00020$	Struczinski, NPB108, 45-76	
	5.000	1.000	0.00390	0.00150		Ballam, PL30B, 421-69	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.250						
Threshold	1.240						
107. $\gamma p \rightarrow \Delta^{++}_{1236} \pi^+ 2 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\Delta^{++}_{1236} \rightarrow [p \pi^+]$			1.800	0.700	0.00070	Erbe, PR188, 2060-69	
			2.350	0.250	0.00190	Struczinski, NPB108, 45-76	
			2.925	0.325	$0.110 \cdot 10^{-2}$	Struczinski, NPB108, 45-76	
			3.200	0.500	0.00290	Alexander, PRD8, 1965-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	3.625	0.375	0.900 $\cdot 10^{-3}$	$0.400 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
...corrected for branching ratio...			4.000	0.500	0.00160	Erbe, PR188, 2060-69	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	4.200	0.500	0.00190	0.00040		Alexander, PRD8, 1965-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	4.300		0.00310	0.00110		Eisenberg, PRL22, 669-69	
	4.500	0.500	0.00150	0.00030	$0.00022$	Struczinski, NPB108, 45-76	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.150	0.650	0.00220	0.00070		Erbe, PR188, 2060-69	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.250	0.550	0.00200	0.00050		Alexander, PRD8, 1965-73	
	5.500	0.500	$0.700 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	7.500	0.700	0.00170	0.00030		Alexander, PRD8, 1965-73	
Threshold	0.992						
108. $\gamma p \rightarrow \Delta^{++}_{1236} \pi^0 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.850	0.250	$0.500 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	2.350	0.250	$0.800 \cdot 10^{-3}$	$0.500 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
	2.925	0.325	$0.120 \cdot 10^{-2}$	$0.300 \cdot 10^{-3}$	$0.180 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
	3.625	0.375	$0.800 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.120 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
	4.200	0.500	0.00050	0.00040		Eisenberg, PRD5, 15-72	
	4.500	0.500	$0.400 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
	5.250	0.550	0.00060	0.00030		Eisenberg, PRD5, 15-72	
	5.650	0.650	$0.300 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski, NPB108, 45-76	
Threshold	0.748						

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>109. <math>\gamma p \rightarrow \Delta^{++}_{1236} \pi^-</math></b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.425	0.025	0.00400	0.00080		Erbe, PR175, 1669-68	
	0.425	0.075	0.00560	0.00140		Gianello, NCA63, 892-69	
	0.475	0.025	0.01380	0.00140		Erbe, PR175, 1669-68	
	0.525	0.025	0.04000	0.00500		Gianello, NCA63, 892-69	
	0.550	0.050	0.04420	0.00400		Crouch, PR163, 1510-67	
	0.575	0.025	0.05000	0.00500		Gianello, NCA63, 892-69	
	0.580		0.06900	0.00260		Allaby, PR142, 887-66	
	0.600		0.06810	0.00220		Allaby, PR142, 887-66	
	0.625	0.025	0.07100	0.00700		Gianello, NCA63, 892-69	
	0.630		0.07340	0.00790		Allaby, PR142, 887-66	
	0.650	0.050	0.06950	0.00600		Crouch, PR163, 1510-67	
	0.675	0.025	0.07200	0.01000		Gianello, NCA63, 892-69	
	0.700		0.06590	0.00350		Allaby, PR142, 887-66	
	0.725	0.025	0.05900	0.00900		Gianello, NCA63, 892-69	
	0.750	0.050	0.07650	0.00660		Crouch, PR163, 1510-67	
	0.775	0.025	0.04100	0.00900		Gianello, NCA63, 892-69	
	0.800		0.04670	0.00520		Allaby, PR142, 887-66	
	0.825	0.025	0.03100	0.00800		Gianello, NCA63, 892-69	
	0.850	0.050	0.05340	0.00600		Crouch, PR163, 1510-67	
	0.875	0.025	0.04800	0.00850		Gianello, NCA63, 892-69	
	0.900		0.04690	0.00520		Allaby, PR142, 887-66	
	0.925	0.025	0.05480	0.00610		Erbe, PR175, 1669-68	
<b><math>\Delta^{++}_{1236} \rightarrow [p \pi^+]</math></b>							
	0.934		0.04500	0.00240		Hauser, PR160, 1215-67	
	0.950	0.050	0.05700	0.00600		Gianello, NCA63, 892-69	
	0.975	0.025	0.05120	0.00550		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	0.985		0.04590	0.00250		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.034		0.04290	0.00380		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.050	0.050	0.04450	0.00360		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.086		0.03910	0.00320		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.125	0.025	0.03000	0.00280		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.136		0.02920	0.00300		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.175	0.025	0.02200	0.00280		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.187		0.03080	0.00350		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.200	0.100	0.02900	0.00400		Crouch, PR163, 1510-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.225	0.025	0.02250	0.00300		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.236		0.01990	0.00350		Hauser, PR160, 1215-67	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.275	0.025	0.01950	0.00250		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	1.289		0.01820	0.00350		Hauser, PR160, 1215-67	
	1.325	0.025	0.01850	0.00250		Erbe, PR175, 1669-68	
	1.375	0.025	0.01370	0.00220		Erbe, PR175, 1669-68	
	1.450	0.050	0.01550	0.00200		Erbe, PR175, 1669-68	
	1.550	0.050	0.01520	0.00160		Erbe, PR175, 1669-68	
	1.650	0.050	0.01220	0.00150		Erbe, PR175, 1669-68	
	1.750	0.150	0.00610	0.00100	0.00091	Struczinski, NPB108, 45-76	
	1.750	0.050	0.01540	0.00150		Erbe, PR175, 1669-68	
	1.900	0.100	0.00960	0.00100		Erbe, PR175, 1669-68	
	2.000	0.100	0.00540	0.00090	0.00081	Struczinski, NPB108, 45-76	
	2.100	0.100	0.00620	0.00100		Erbe, PR175, 1669-68	
	2.200	0.100	0.00420	0.00080	0.00063	Struczinski, NPB108, 45-76	
	2.350	0.150	0.00610	0.00070		Erbe, PR175, 1669-68	
	2.450	0.150	0.00380	0.00060	0.00057	Struczinski, NPB108, 45-76	
	2.750	0.250	0.00300	0.00060		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	2.800	0.500	0.00360	0.00040		Ballam, PRD5, 545-72	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	2.925	0.325	0.00290	0.00050	0.00043	Struczinski, NPB108, 45-76	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	3.000	1.000	0.00350	0.00120		Davier, PRD1, 790-69	
	3.250	0.250	0.00380	0.00060		Erbe, PR175, 1669-68	
	3.625	0.375	0.00170	0.00050	0.00025	Struczinski, NPB108, 45-76	
	4.000	0.500	0.00190	0.00050		Erbe, PR175, 1669-68	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	4.300		0.00140	0.00030		Eisenberg, PRL22, 669-69	
	4.500	0.500	$0.120 \cdot 10^{-2}$	$0.200 \cdot 10^{-3}$	$0.180 \cdot 10^{-3}$	Struczinski, NPB108, 45-76	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	4.700	0.600	$0.100 \cdot 10^{-2}$	$0.100 \cdot 10^{-3}$		Ballam, PRD5, 545-72	
	5.150	1.050	0.00124	0.00025		Struczinski, NPB57, 1-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.250		0.00170	0.00040		Ballam, PL30B, 421-69	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>109. <math>\gamma p \rightarrow \Delta^{++}_{1236} \pi^-</math> (Continued)</b>							
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.650	0.650	$0.900 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
	6.000	2.000	0.00080	0.00040		Davier,PRD1,790-69	
	9.300	0.600	$0.320 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$		Ballam,PRD7,3150-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	12.000	4.000	0.00030	0.00020		Davier,PRD1,790-69	
Threshold	0.540						
<b>110. <math>\gamma p \rightarrow \Delta^{++}_{1236} \pi^- \rho^0</math></b>							
$\Delta^{++}_{1236} \rightarrow [p \pi^+] \& \rho^0 \rightarrow [\pi^+ \pi^-]$	3.050	0.950	$0.300 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	4.200	0.500	0.00060	0.00020		Alexander,PRD8,1965-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	4.400	1.900	0.00030	0.00020		Schacht,NPB81,205-74	
	5.000	1.000	$0.300 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	5.250	0.550	0.00160	0.00050		Alexander,PRD8,1965-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	7.100	1.900	$0.800 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Schacht,NPB81,205-74	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	7.500	0.700	0.00140	0.00040		Alexander,PRD8,1965-73	
$\Delta^{++}_{1236} \rightarrow \text{idem}$	12.700	5.300	$0.700 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Schacht,NPB81,205-74	
Threshold	2.015						
<b>111. <math>\gamma p \rightarrow \Delta^{++}_{1236} \pi^- \omega</math></b>							
$\Delta^{++}_{1236} \rightarrow [p \pi^+] \& \omega \rightarrow [\pi^+ \pi^- \rho^0]$	5.250		0.00056	0.00022		Ballam,PL30B,421-69	
Threshold	2.015						
<b>112. <math>\gamma p \rightarrow \Delta^{++}_{1236} \rho^-</math></b>							
	1.600	0.200	0.00140	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.850	0.250	0.00350	0.00060	0.00052	Erbe,PR188,2060-69	
	2.150	0.350	0.00210	0.00090		Struczinski,NPB108,45-76	
	2.350	0.250	0.00280	0.00050		Erbe,PR188,2060-69	
	2.800		0.00170	0.00070		Struczinski,NPB108,45-76	
	2.925	0.325	$0.900 \cdot 10^{-3}$	$0.400 \cdot 10^{-3}$	$0.130 \cdot 10^{-3}$	Ballam,LIVERPOOL CONF-69	
	3.000	0.500	0.00150	0.00060		Struczinski,NPB108,45-76	
	3.150	0.350	0.00215	0.00090		Erbe,PR188,2060-69	
	3.625	0.375	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$	Struczinski,ZPC2,1-79	
	3.850	0.350	0.00124	0.00023		Barber,ZPC2,1-79	
	4.200	0.500	0.00180	0.00040		Struczinski,NPB108,45-76	
	4.300		0.00180	0.00040		Eisenberg,PRD5,15-72	
	4.500	0.500	$0.400 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$	Erben,PRL25,764-70	
	4.500	0.300	$0.690 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Struczinski,NPB108,45-76	
	4.650	1.150	0.00080	0.00030		Barber,ZPC2,1-79	
	4.700		0.00070	0.00030		Erbe,PR188,2060-69	
	5.250	0.550	0.00090	0.00035		Ballam,LIVERPOOL CONF-69	
	5.650	0.650	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$	Eisenberg,PRD5,15-72	
	7.500	0.700	0.00110	0.00020		Struczinski,NPB108,45-76	
	9.000	1.500	$0.700 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Eisenberg,PRD5,15-72	
Threshold	1.675					Nelson,PRD17,647-78	
<b>113. <math>\gamma p \rightarrow \Delta^{++}_{1236} A_1^-</math></b>							
$\Delta^{++}_{1236} \rightarrow [p \pi^+] \& A_1^- \rightarrow [\pi^+ 2\pi^-]$	4.400	1.900	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	-1.400					Schacht,NPB81,205-74	
...corrected for branching ratio...			0.00040	0.00020			
$\Delta^{++}_{1236} \rightarrow [p \pi^+] \& A_1^- \rightarrow [\rho^0 \pi^-]$	4.400	1.900	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		Schacht,NPB81,205-74	
	2.365						
<b>114. <math>\gamma p \rightarrow \Delta^{++}_{1236} A_2^-</math></b>							
$\Delta^{++}_{1236} \rightarrow [p \pi^+] \& A_2^- \rightarrow [\pi^+ 2\pi^-]$	4.400	1.900	$0.200 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	-1.400					Schacht,NPB81,205-74	
...corrected for branching ratio...			0.00057	0.00029			
	5.000	1.000	$0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
	5.250		0.00070	0.00030		Ballam,PL30B,421-69	

Reaction	$P_{lab}$ (GeV/c)	$\Delta P_{lab} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>114. <math>\gamma p \rightarrow \Delta^{++}_{1236} A_2^-</math> (Continued)</b>							
$A_2^- \rightarrow p^0 \pi^-$ & ( $p^0 \rightarrow \pi^+ \pi^-$ )	9.300	0.279	$0.280 \cdot 10^{-3}$	$0.800 \cdot 10^{-4}$			
...corrected for branching ratio...			0.00080	0.00023		Ballam,NPB76,375-74	
Threshold	2.985						
<b>115. <math>\gamma p \rightarrow \Delta^+_{1236} \pi^+ \pi^-</math></b>							
$\Delta^+_{1236} \rightarrow p\pi^0$	1.850	0.250	$0.400 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			$0.604 \cdot 10^{-3}$	$0.453 \cdot 10^{-3}$	$0.136 \cdot 10^{-3}$		
$\Delta^+_{1236} \rightarrow$ idem	2.350	0.250	0.00120	0.00050	0.00027	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00181	0.00075	0.00041		
$\Delta^+_{1236} \rightarrow$ idem	2.925	0.325	0.00110	0.00030	0.00025	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00166	0.00045	0.00038		
$\Delta^+_{1236} \rightarrow$ idem	3.625	0.375	$0.800 \cdot 10^{-3}$	$0.300 \cdot 10^{-3}$	$0.180 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00121	0.00045	0.00027		
$\Delta^+_{1236} \rightarrow [p\pi^0]$							
	5.250		0.00257	0.00075		Ballam,PL30B,421-69	
	7.500	0.700	0.00050	0.00020		Eisenberg,PRD5,15-72	
Threshold	0.756						
<b>116. <math>\gamma p \rightarrow \Delta^+_{1236} p^0</math></b>							
$\Delta^+_{1236} \rightarrow p\pi^+$	2.350	0.250	$0.250 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.110 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00075	0.00030	0.00033		
$\Delta^+_{1236} \rightarrow$ idem	2.925	0.325	$0.160 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.700 \cdot 10^{-4}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00048	0.00030	0.00021		
$\Delta^+_{1236} \rightarrow$ idem	3.625	0.375	$0.210 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00063	0.00030	0.00030		
	4.300		0.00030	0.00020		Eisenberg,PRL25,764-70	
$\Delta^+_{1236} \rightarrow p\pi^0$	4.500	0.500	$0.700 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.160 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00106	0.00030	0.00024		
$\Delta^+_{1236} \rightarrow$ idem	4.650	1.150	0.00050	0.00030		Erbe,PR188,2060-69	
...corrected for branching ratio...			0.00075	0.00045			
	5.250	0.550	0.00050	0.00020		Eisenberg,PRD5,15-72	
$\Delta^+_{1236} \rightarrow$ idem	5.650	0.650	$0.600 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00091	0.00030	0.00021		
	7.500	0.700	0.00030	0.00020		Eisenberg,PRD5,15-72	
Threshold	1.703						
<b>117. <math>\gamma p \rightarrow \Delta^+_{1236} \omega</math></b>							
	3.150	0.350	0.00470	0.00080		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.850	0.350	0.00310	0.00030		Barber,ZPC26,343-84	
	4.500	0.300	0.00250	0.00030		Barber,ZPC26,343-84	
Threshold	1.703					Barber,ZPC26,343-84	
<b>118. <math>\gamma p \rightarrow \Delta^0_{1236} \pi^+</math></b>							
	0.950	0.050	0.02270	0.01260		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.200	0.100	0.00810	0.00270		Crouch,PR163,1510-67	
	1.650	0.150	0.00390	0.00210		Erbe,PR175,1669-68	
$\Delta^0_{1236} \rightarrow p\pi^-$	1.750	0.150	0.00090	0.00060	0.00041	Erbe,PR175,1669-68	
...corrected for branching ratio...			0.00272	0.00181	0.00124	Struczinski,NPB108,45-76	
$\Delta^0_{1236} \rightarrow [p\pi^-]$							
	1.800	0.400	0.00300	0.00200		Crouch,PR156,1426-67	
$\Delta^0_{1236} \rightarrow p\pi^-$	2.800	0.500	0.00050	0.00020		Ballam,PRD5,545-72	
	-4.000						
...corrected for branching ratio...			0.00151	0.00060			
	3.000	0.500	0.00380	0.00080		Erbe,PR175,1669-68	
$\Delta^0_{1236} \rightarrow$ idem	4.500	0.500	$0.400 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.180 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00121	0.00030	0.00054		
	4.650	1.150	0.00080	0.00040		Erbe,PR175,1669-68	
$\Delta^0_{1236} \rightarrow$ idem	4.700	0.600	$0.160 \cdot 10^{-3}$	$0.900 \cdot 10^{-4}$		Ballam,PRD5,545-72	
...corrected for branching ratio...			0.00048	0.00027			
$\Delta^0_{1236} \rightarrow [p\pi^-]$							
	5.150	1.050	0.00120	0.00050		Struczinski,NPB57,1-73	
$\Delta^0_{1236} \rightarrow p\pi^-$	5.650	0.650	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$	Struczinski,NPB108,45-76	
...corrected for branching ratio...			0.00091	0.00030	0.00042		
Threshold	0.540						

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
119. $\gamma p \rightarrow \Delta^0_{1236} 2\pi^+ \pi^-$ $\Delta^0_{1236} \rightarrow p\pi^-$	12.700 - 3.700	5.300 ...corrected for branching ratio... Threshold	$0.200 \cdot 10^{-3}$ 0.604 $\cdot 10^{-3}$ 0.992	$0.500 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Schacht,NPB81,205-74	
120. $\gamma p \rightarrow \Delta^0_{1236} \rho^+$ $\Delta^0_{1236} \rightarrow p\pi^-$	1.600 ...corrected for branching ratio... 4.300 ...corrected for branching ratio... 4.650 ...corrected for branching ratio... 5.250 ...corrected for branching ratio... 7.500 ...corrected for branching ratio... Threshold	0.200 0.000362 0.00030 0.000181 0.00060 0.00040 0.700 0.00075 1.150 0.550 1.675	0.00120 0.000272 0.000030 0.000020 0.000030 0.000040 $0.250 \cdot 10^{-3}$ 0.00045	0.000090 0.000020 0.000030 0.000091 0.000030 0.000045 $0.150 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Erbe,PR188,2060-69	
$\Delta^0_{1236} \rightarrow \text{idem}$	4.650	1.150	0.00060	0.00030		Eisenberg,PRL25,764-70	
$\Delta^0_{1236} \rightarrow \text{idem}$	5.250	0.550	0.00040	0.00030		Eisenberg,PRD5,15-72	
121. $\gamma p \rightarrow \Delta^-_{1236} 2\pi^+$	1.850 2.350 2.925 3.625 4.200 5.250 Threshold	0.250 0.250 0.325 0.375 0.500 0.550 0.756	0.00213 0.00160 $0.117 \cdot 10^{-2}$ $0.670 \cdot 10^{-3}$ 0.00140 0.00050	0.00040 0.00025 $0.300 \cdot 10^{-3}$ $0.160 \cdot 10^{-3}$ 0.00040 0.00030	0.00032 0.00024 $0.200 \cdot 10^{-4}$ $0.100 \cdot 10^{-3}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Struczinski,NPB108,45-76	
122. $\gamma p \rightarrow \Delta^-_{1236} 3\pi^+ \pi^-$	2.925 5.000 Threshold	0.325 1.000 1.250	$0.400 \cdot 10^{-3}$ $0.500 \cdot 10^{-3}$	$0.200 \cdot 10^{-3}$ $0.200 \cdot 10^{-3}$	$0.600 \cdot 10^{-4}$ $0.800 \cdot 10^{-4}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Struczinski,NPB108,45-76	
123. $\gamma p \rightarrow \rho^0 \text{ Anything}$ $\rho^0 \rightarrow [\pi^+ \pi^-]$	2.800 4.700 9.300 39.000 31.000	0.250 0.325 1.000 31.000	0.00600 0.01310 0.02050 0.02160	0.00120 0.00120 0.00110 0.00100	0.00220	(Cross section units: $10^{-27} \text{ cm}^2$ ) Kogan,NPB122,383-77	
124. $\gamma p \rightarrow \omega \text{ Anything}$ $\omega \rightarrow [\pi^+ \pi^- \pi^0]$	39.000 31.000	31.000	0.01580	0.00240	0.00220	(Cross section units: $10^{-27} \text{ cm}^2$ ) Atkinson,NPB245,189-84	
125. $\gamma p \rightarrow \psi \text{ Anything}$	105.000	55.000	$0.215 \cdot 10^{-4}$	$0.210 \cdot 10^{-5}$	$0.140 \cdot 10^{-5}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Denby,PRL52,795-84	
126. $\gamma p \rightarrow \psi' \text{ Anything}$	105.000	55.000	$0.196 \cdot 10^{-4}$	$0.210 \cdot 10^{-5}$	$0.140 \cdot 10^{-5}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Denby,PRL52,795-84	
127. $\gamma p \rightarrow K^0_s \bar{\Lambda} \text{ Anything}$	20.000		$0.230 \cdot 10^{-4}$	$0.900 \cdot 10^{-5}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe,PRD32,2869-85	EL
128. $\gamma p \rightarrow K^0_s \text{ Anything}$	20.000		0.00966	0.00027		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe,PRD32,2869-85	EL
129. $\gamma p \rightarrow 2 K^0_s \text{ Anything}$	20.000		$0.973 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe,PRD32,2869-85	EL
130. $\gamma p \rightarrow K^{*+}_{890} \text{ Anything}$	20.000		0.00327	0.00035		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe,PRD29,1877-84	
131. $\gamma p \rightarrow K^{*-}_{890} \text{ Anything}$	20.000		0.00190	0.00028		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe,PRD29,1877-84	

EL = Errors include both statistical and systematic contributions

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
132. $\gamma p \rightarrow \text{Charmed Particles}$	20.000		$0.620 \cdot 10^{-4}$	$0.800 \cdot 10^{-5}$	$0.150 \cdot 10^{-4}$ $-1.100 \cdot 10^{-4}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD33,1-86	
133. $\gamma p \rightarrow D_c \bar{D}_c \text{ Anything}$	20.000		$0.170 \cdot 10^{-4}$	$0.800 \cdot 10^{-5}$ $-6.000 \cdot 10^{-5}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD33,1-86	
134. $\gamma p \rightarrow D_c^0 \text{ Anything}$	45.000	25.000	$0.525 \cdot 10^{-3}$	$0.140 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Aston, PL94B,113-80	
135. $\gamma p \rightarrow D_c^{*+} \text{ Anything}$	100.000	20.000	$0.980 \cdot 10^{-4}$	$0.310 \cdot 10^{-4}$	$0.320 \cdot 10^{-4}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Sliwa, PRD32,1053-85	
	140.000	20.000	$0.105 \cdot 10^{-3}$	$0.390 \cdot 10^{-4}$ $-0.330 \cdot 10^{-4}$		Sliwa, PRD32,1053-85	
136. $\gamma p \rightarrow F_c^+ F_c^- \text{ Anything}$ $F_c^+ \rightarrow \eta 2\pi^+ \pi^- \& F_c^- \rightarrow \eta' \pi^+ 2\pi^-$	39.000	31.000	$0.200 \cdot 10^{-4}$	$0.100 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Aston, PL100B,91-81	
$F_c^+ \rightarrow \eta \pi^+ \& F_c^- \rightarrow \eta \pi^-$	39.000	31.000	$0.380 \cdot 10^{-4}$	$0.140 \cdot 10^{-4}$		Atkinson, ZPC17,1-83	
$F_c^+ \rightarrow \eta 2\pi^+ \pi^- \& F_c^- \rightarrow \eta \pi^+ 2\pi^-$	39.000	31.000	$0.930 \cdot 10^{-4}$	$0.520 \cdot 10^{-4}$		Atkinson, ZPC17,1-83	
$F_c^+ \rightarrow \eta \pi^+ \pi^0 \& F_c^- \rightarrow \eta \pi^- \pi^0$	39.000	31.000	$0.660 \cdot 10^{-4}$	$0.420 \cdot 10^{-4}$		Atkinson, ZPC17,1-83	
137. $\gamma p \rightarrow \bar{\Lambda}^- \text{ Anything}$	20.000		$0.100 \cdot 10^{-4}$	$0.400 \cdot 10^{-5}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD32,2869-85	EL
138. $\gamma p \rightarrow \bar{\Lambda} \text{ Anything}$	20.000	2.000	$0.329 \cdot 10^{-3}$	$0.400 \cdot 10^{-4}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Abe, PRD29,1877-84	
	20.000		$0.389 \cdot 10^{-3}$	$0.360 \cdot 10^{-4}$		Abe, PRD32,2869-85	EL
139. $\gamma n \rightarrow \text{Total}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.265		0.31250	0.01200		Armstrong, NPB41,445-72	
	0.290		0.39300	0.01260		Armstrong, NPB41,445-72	
	0.315		0.44010	0.01290		Armstrong, NPB41,445-72	
	0.340		0.45820	0.01310		Armstrong, NPB41,445-72	
	0.365		0.37740	0.01290		Armstrong, NPB41,445-72	
	0.390		0.33290	0.01240		Armstrong, NPB41,445-72	
	0.415		0.29960	0.01190		Armstrong, NPB41,445-72	
	0.440		0.27150	0.01110		Armstrong, NPB41,445-72	
	0.465		0.21650	0.01090		Armstrong, NPB41,445-72	
	0.490		0.22970	0.01080		Armstrong, NPB41,445-72	
	0.515		0.18610	0.01040		Armstrong, NPB41,445-72	
	0.540		0.15510	0.01020		Armstrong, NPB41,445-72	
	0.565		0.20200	0.00770		Armstrong, NPB41,445-72	
	0.590		0.20730	0.00770		Armstrong, NPB41,445-72	
	0.615		0.20640	0.00790		Armstrong, NPB41,445-72	
	0.640		0.21930	0.00820		Armstrong, NPB41,445-72	
	0.665		0.22750	0.00840		Armstrong, NPB41,445-72	
	0.690		0.23840	0.00870		Armstrong, NPB41,445-72	
	0.715		0.21500	0.00890		Armstrong, NPB41,445-72	
	0.740		0.24940	0.00890		Armstrong, NPB41,445-72	
	0.765		0.21330	0.00900		Armstrong, NPB41,445-72	
	0.790		0.20230	0.00900		Armstrong, NPB41,445-72	
	0.815		0.19690	0.00910		Armstrong, NPB41,445-72	
	0.840		0.17970	0.00900		Armstrong, NPB41,445-72	
	0.865		0.16930	0.00900		Armstrong, NPB41,445-72	
	0.890		0.16420	0.00880		Armstrong, NPB41,445-72	
	0.915		0.14630	0.00890		Armstrong, NPB41,445-72	
	0.940		0.12800	0.00880		Armstrong, NPB41,445-72	
	0.965		0.15550	0.00900		Armstrong, NPB41,445-72	

EL = Errors include both statistical and systematic contributions

IX.2  $\gamma$ : Cross section data

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>139. <math>\gamma n \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.990		0.14890	0.00920			Armstrong,NPB41,445-72	
1.015		0.14350	0.00940			Armstrong,NPB41,445-72	
1.040		0.13980	0.00930			Armstrong,NPB41,445-72	
1.065		0.15730	0.00940			Armstrong,NPB41,445-72	
1.090		0.14790	0.00950			Armstrong,NPB41,445-72	
1.115		0.14930	0.00930			Armstrong,NPB41,445-72	
1.165		0.14030	0.00930			Armstrong,NPB41,445-72	
1.190		0.12580	0.00950			Armstrong,NPB41,445-72	
1.215		0.13540	0.00950			Armstrong,NPB41,445-72	
1.240		0.13940	0.00940			Armstrong,NPB41,445-72	
1.265		0.14020	0.00940			Armstrong,NPB41,445-72	
1.290		0.13640	0.00960			Armstrong,NPB41,445-72	
1.315		0.13250	0.00950			Armstrong,NPB41,445-72	
1.340		0.14550	0.00980			Armstrong,NPB41,445-72	
1.365		0.13260	0.00980			Armstrong,NPB41,445-72	
1.390		0.13970	0.01040			Armstrong,NPB41,445-72	
1.415		0.12860	0.00990			Armstrong,NPB41,445-72	
1.440		0.12600	0.00990			Armstrong,NPB41,445-72	
1.450		0.14130	0.01190			Meyer,PL33B,189-70	
1.465		0.13140	0.01020			Armstrong,NPB41,445-72	
1.490		0.13780	0.01040			Armstrong,NPB41,445-72	
1.515		0.13530	0.00850			Armstrong,NPB41,445-72	
1.540		0.12640	0.00830			Armstrong,NPB41,445-72	
1.565		0.14710	0.00830			Armstrong,NPB41,445-72	
1.590		0.16500	0.00860			Armstrong,NPB41,445-72	
1.615		0.13110	0.00860			Armstrong,NPB41,445-72	
1.640		0.12610	0.00840			Armstrong,NPB41,445-72	
1.665		0.13480	0.00790			Armstrong,NPB41,445-72	
1.690		0.12770	0.00770			Armstrong,NPB41,445-72	
1.740		0.12950	0.00790			Armstrong,NPB41,445-72	
1.750		0.14130	0.01150			Meyer,PL33B,189-70	
1.765		0.14520	0.00930			Armstrong,NPB41,445-72	
1.790		0.14530	0.00940			Armstrong,NPB41,445-72	
1.815		0.15980	0.00960			Armstrong,NPB41,445-72	
1.840		0.13230	0.00950			Armstrong,NPB41,445-72	
1.865		0.12340	0.00950			Armstrong,NPB41,445-72	
1.890		0.12120	0.00980			Armstrong,NPB41,445-72	
1.915		0.13330	0.00950			Armstrong,NPB41,445-72	
1.940		0.14340	0.00990			Armstrong,NPB41,445-72	
2.000		0.13000	0.00380			Armstrong,NPB41,445-72	
2.050		0.12210	0.01080			Meyer,PL33B,189-70	
2.200		0.12920	0.00440			Armstrong,NPB41,445-72	
2.350		0.12250	0.01270			Meyer,PL33B,189-70	
2.400		0.12340	0.00450			Armstrong,NPB41,445-72	
2.600		0.12130	0.00460			Armstrong,NPB41,445-72	
2.650		0.12950	0.01360			Meyer,PL33B,189-70	
2.800		0.12540	0.00340			Armstrong,NPB41,445-72	
2.950		0.14050	0.01110			Meyer,PL33B,189-70	
3.000		0.13040	0.00340			Armstrong,NPB41,445-72	
3.200		0.13220	0.00370			Armstrong,NPB41,445-72	
3.250		0.12370	0.01040			Meyer,PL33B,189-70	
3.400		0.11920	0.00400			Armstrong,NPB41,445-72	
3.550		0.12020	0.01120			Meyer,PL33B,189-70	
3.600		0.12420	0.00410			Armstrong,NPB41,445-72	
3.700		0.11430	0.00910			Caldwell,PRD7,1362-73	
3.800		0.12230	0.00410			Armstrong,NPB41,445-72	
3.850		0.11730	0.01190			Meyer,PL33B,189-70	
3.940		0.12190	0.00970			Caldwell,PRD7,1362-73	
4.000		0.11250	0.00410			Armstrong,NPB41,445-72	
4.150		0.11790	0.01040			Meyer,PL33B,189-70	
4.190		0.11430	0.01010			Caldwell,PRD7,1362-73	
4.300	0.700	0.12820	0.00700			Eisenberg,NPB104,61-76	
4.430		0.12300	0.01180			Caldwell,PRD7,1362-73	
4.450		0.11570	0.01010			Meyer,PL33B,189-70	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>139. <math>\gamma n \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
4.700		0.12300	0.00840			Caldwell,PRD7,1362-73	
4.750		0.11770	0.00980			Meyer,PL33B,189-70	
5.010		0.10100	0.00850			Caldwell,PRD7,1362-73	
5.050		0.13070	0.00890			Meyer,PL33B,189-70	
5.320		0.12390	0.00900			Caldwell,PRD7,1362-73	
5.350		0.11630	0.01030			Meyer,PL33B,189-70	
5.630		0.11590	0.01050			Caldwell,PRD7,1362-73	
5.650		0.11770	0.00920			Meyer,PL33B,189-70	
5.950		0.10530	0.00970			Meyer,PL33B,189-70	
5.980		0.13680	0.01130			Caldwell,PRD7,1362-73	
6.250		0.10940	0.00950			Meyer,PL33B,189-70	
6.370		0.11270	0.01130			Caldwell,PRD7,1362-73	
6.760		0.12550	0.01130			Caldwell,PRD7,1362-73	
7.160		0.11990	0.01230			Caldwell,PRD7,1362-73	
7.500		0.11800	0.00800			Alexander,NPB68,1-74	
7.680		0.10000	0.00950			Caldwell,PRD7,1362-73	
8.180		0.12450	0.01000			Caldwell,PRD7,1362-73	
8.680		0.13210	0.01030			Caldwell,PRD7,1362-73	
8.950		0.12730	0.00770			Caldwell,PRD7,1362-73	
9.190		0.13820	0.01090			Caldwell,PRD7,1362-73	
9.540		0.10220	0.00760			Caldwell,PRD7,1362-73	
9.750		0.11340	0.00730			Caldwell,PRD7,1362-73	
10.120		0.11160	0.00780			Caldwell,PRD7,1362-73	
10.390		0.11530	0.00770			Caldwell,PRD7,1362-73	
10.710		0.11580	0.00820			Caldwell,PRD7,1362-73	
11.030		0.11080	0.00780			Caldwell,PRD7,1362-73	
11.380		0.10910	0.00810			Caldwell,PRD7,1362-73	
11.670		0.09360	0.00810			Caldwell,PRD7,1362-73	
12.120		0.11500	0.00820			Caldwell,PRD7,1362-73	
12.390		0.11340	0.00640			Caldwell,PRD7,1362-73	
12.860		0.11930	0.00830			Caldwell,PRD7,1362-73	
13.200		0.12470	0.00660			Caldwell,PRD7,1362-73	
13.610		0.10980	0.00900			Caldwell,PRD7,1362-73	
14.010		0.09590	0.00690			Caldwell,PRD7,1362-73	
14.820		0.11640	0.00820			Caldwell,PRD7,1362-73	
14.920		0.11770	0.00820			Caldwell,PRD7,1362-73	
15.890		0.10350	0.00860			Caldwell,PRD7,1362-73	
16.870		0.11600	0.01030			Caldwell,PRD7,1362-73	
17.840		0.10280	0.01300			Caldwell,PRD7,1362-73	
<b>140. <math>\gamma n \rightarrow \text{Strange Particles}</math></b>							
	4.300	0.700	0.00900	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
						Eisenberg,NPB104,61-76	
<b>141. <math>\gamma n \rightarrow 0 \text{ Prongs}</math></b>							
	4.300	0.700	0.00680	0.00460		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.01120	0.00200		Eisenberg,NPB104,61-76	
						Alexander,NPB68,1-74	
<b>142. <math>\gamma n \rightarrow 2 \text{ Prongs}</math></b>							
	4.300	0.700	0.07290	0.00360		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.05700	0.00500		Eisenberg,NPB104,61-76	
						Alexander,NPB68,1-74	
<b>143. <math>\gamma n \rightarrow 4 \text{ Prongs}</math></b>							
	4.300	0.700	0.03600	0.00130		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.03000	0.00300		Eisenberg,NPB104,61-76	
						Alexander,NPB68,1-74	
<b>144. <math>\gamma n \rightarrow 6 \text{ Prongs}</math></b>							
	4.300	0.700	0.00350	0.00040		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.00650	0.00100		Eisenberg,NPB104,61-76	
						Alexander,NPB68,1-74	

SA = Systematic error included

2 = Events with visible neutral strange particle decays

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
145. $\gamma n \rightarrow 8 \text{ Prongs}$	7.500		$0.500 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Alexander,NPB68,1-74	
146. $\gamma n \rightarrow \Lambda K^{*0}_{890} \rightarrow K^+ \pi^-$	3.250	1.250	$0.300 \cdot 10^{-3}$	$0.100 \cdot 10^{-3}$		(Cross section units: $10^{-27} \text{ cm}^2$ ) Benz,NPB115,385-76	
...corrected for branching ratio...			$0.450 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$			
Threshold	1.689						
147. $\gamma n \rightarrow p \pi^+ \pi^0 2 \pi^-$	4.300		0.00750	0.00100		(Cross section units: $10^{-27} \text{ cm}^2$ ) Eisenberg,NPB25,499-71	
	7.500		0.00610	0.00080		Alexander,NPB68,1-74	
Threshold	0.716						
148. $\gamma n \rightarrow p \pi^+ \pi^- \rho^-$	4.300		0.00110	0.00050		(Cross section units: $10^{-27} \text{ cm}^2$ ) Eisenberg,NPB25,499-71	
Threshold	1.633						
149. $\gamma n \rightarrow p \pi^+ 2 \pi^-$	1.450	0.350	0.00290	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ ) Eisenberg,NPB25,499-71	
	2.650	0.850	0.00580	0.00090		Eisenberg,NPB25,499-71	
	4.300		0.00520	0.00060		Eisenberg,NPB25,499-71	
	7.500		0.00310	0.00030		Alexander,NPB115,48-76	
Threshold	0.512						
150. $\gamma n \rightarrow p \pi^0 \pi^-$	0.373	0.019	0.00150	0.00050		(Cross section units: $10^{-27} \text{ cm}^2$ ) Carbonara,NCA36,219-76	
	0.416	0.019	0.00550	0.00100		Carbonara,NCA36,219-76	
	0.458	0.019	0.01070	0.00150		Carbonara,NCA36,219-76	
	0.501	0.019	0.01480	0.00180		Carbonara,NCA36,219-76	
	0.544	0.019	0.02090	0.00220		Carbonara,NCA36,219-76	
	0.586	0.019	0.02840	0.00280		Carbonara,NCA36,219-76	
	0.629	0.019	0.02690	0.00280		Carbonara,NCA36,219-76	
	0.672	0.018	0.03460	0.00350		Carbonara,NCA36,219-76	
	0.714	0.019	0.04400	0.00400		Carbonara,NCA36,219-76	
	0.756	0.019	0.04060	0.00420		Carbonara,NCA36,219-76	
	0.799	0.019	0.03940	0.00450		Carbonara,NCA36,219-76	
	0.842	0.019	0.05070	0.00570		Carbonara,NCA36,219-76	
	0.885	0.018	0.05510	0.00690		Carbonara,NCA36,219-76	
	0.927	0.019	0.05670	0.00860		Carbonara,NCA36,219-76	
	7.500		0.00180	0.00050		Alexander,NPB68,1-74	
Threshold	0.313						
151. $\gamma n \rightarrow p \pi^0 \pi^- \rho^-$	4.300		0.00180	0.00100		(Cross section units: $10^{-27} \text{ cm}^2$ ) Eisenberg,NPB25,499-71	
Threshold	1.623						
152. $\gamma n \rightarrow p \pi^-$	0.157		0.07730	0.00480		(Cross section units: $10^{-27} \text{ cm}^2$ ) Goldwasser,DUBNA64-64	
	0.162		0.08520	0.00500		Goldwasser,DUBNA64-64	
	0.168		0.09720	0.00600		Goldwasser,DUBNA64-64	
	0.173		0.09430	0.00680		Goldwasser,DUBNA64-64	
	0.175		0.11000	0.02000		White,PR120,614-60	
	0.178		0.11870	0.01180		Goldwasser,DUBNA64-64	
	0.183		0.11000	0.01460		Goldwasser,DUBNA64-64	
	0.188		0.12740	0.01770		Goldwasser,DUBNA64-64	
	0.190		0.13220	0.00380		Carbonara,NCA13,59-73	
	0.193		0.14780	0.02630		Goldwasser,DUBNA64-64	
	0.210		0.15660	0.00620	0.00785	Benz,NPB65,158-73	
	0.210	0.010	0.12380	0.01260		Hilpert,NPB8,535-68	
			-0.00830				
	0.211		0.14130	0.00420		Carbonara,NCA13,59-73	
	0.222	0.021	0.14700	0.00460		Chiefari,NCL13,129-75	
	0.225		0.15500	0.02000		White,PR120,614-60	
	0.230		0.17330	0.00690	0.00865	Benz,NPB65,158-73	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>152. <math>\gamma n \rightarrow p \pi^-</math> (Continued)</b>							
	0.230	0.010	0.14310	0.01450 -0.00950		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.233		0.18280	0.00510		Hilpert,NPB8,535-68	
	0.240		0.19757	0.00443	0.01383	Carbonara,NCA13,59-73	
	0.250		0.22330	0.00790	0.01115	Vonholtey,NPB70,379-74	
	0.250		0.18500	0.00780		Benz,NPB65,158-73	
	0.250	0.010	0.16470	0.01660 -0.01080		Fujii,NPB120,395-77	
	0.254	0.011	0.20920	0.00840		Hilpert,NPB8,535-68	
	0.254		0.20100	0.00570		Chiefari,NCL13,129-75	
	0.260		0.23360	0.00610		Carbonara,NCA13,59-73	
	0.270		0.25330	0.00880	0.01265	Fujii,NPB120,395-77	
	0.270		0.24270	0.00770		Benz,NPB65,158-73	
	0.270	0.010	0.20980	0.02100 -0.01350		Fujii,NPB120,395-77	
	0.275	0.011	0.23370	0.00920		Hilpert,NPB8,535-68	
	0.275		0.22000	0.03000		Chiefari,NCL13,129-75	
	0.275		0.22660	0.00650		White,PR120,614-60	
	0.280		0.26670	0.00700		Carbonara,NCA13,59-73	
	0.280		0.27292	0.00603	0.01910	Fujii,NPB120,395-77	
	0.290		0.28120	0.00950	0.01405	Vonholtey,NPB70,379-74	
	0.290		0.27340	0.00660		Benz,NPB65,158-73	
	0.290	0.010	0.22080	0.02210 -0.01430		Fujii,NPB120,395-77	
	0.296	0.011	0.24700	0.00990		Hilpert,NPB8,535-68	
	0.297		0.25090	0.00730		Chiefari,NCL13,129-75	
	0.300		0.29170	0.00650		Carbonara,NCA13,59-73	
	0.310		0.28750	0.01000	0.01440	Fujii,NPB120,395-77	
	0.310		0.28980	0.00670		Benz,NPB65,158-73	
	0.310	0.010	0.23310	0.02340 -0.01510		Fujii,NPB120,395-77	
	0.312		0.23510	0.00730		Hilpert,NPB8,535-68	
	0.317	0.011	0.24990	0.01060		Carbonara,NCA13,59-73	
	0.320		0.27650	0.00660		Chiefari,NCL13,129-75	
	0.320		0.28022	0.00589	0.01962	Fujii,NPB120,395-77	
	0.325		0.22500	0.03500		Vonholtey,NPB70,379-74	
	0.330		0.24200	0.00910	0.01210	White,PR120,614-60	
	0.330		0.27450	0.00720		Benz,NPB65,158-73	
	0.330	0.010	0.22460	0.02260 -0.01480		Fujii,NPB120,395-77	
	0.339	0.011	0.21730	0.01040		Hilpert,NPB8,535-68	
	0.339		0.21490	0.00740		Chiefari,NCL13,129-75	
	0.340		0.25000	0.00550		Carbonara,NCA13,59-73	
	0.350		0.20670	0.00910	0.01035	Fujii,NPB120,395-77	
	0.350		0.22280	0.00590		Benz,NPB65,158-73	
	0.350	0.010	0.22170	0.02240 -0.01490		Fujii,NPB120,395-77	
	0.360		0.21490	0.00540		Hilpert,NPB8,535-68	
	0.360		0.21340	0.00426	0.01494	Fujii,NPB120,395-77	
	0.367		0.18850	0.00520		Vonholtey,NPB70,379-74	
	0.370		0.16450	0.00840	0.00825	Carbonara,NCA13,59-73	
	0.370		0.20270	0.00520		Benz,NPB65,158-73	
	0.370	0.010	0.16840	0.01750 -0.01190		Fujii,NPB120,395-77	
	0.371	0.021	0.17740	0.00720		Hilpert,NPB8,535-68	
	0.375		0.17500	0.03500		Chiefari,NCL13,129-75	
	0.380		0.18010	0.00510		White,PR120,614-60	
	0.390		0.16640	0.00860	0.00830	Fujii,NPB120,395-77	
	0.390		0.15890	0.00470		Benz,NPB65,158-73	
	0.390	0.010	0.15010	0.01590 -0.01110		Fujii,NPB120,395-77	
	0.400		0.15350	0.00500		Hilpert,NPB8,535-68	
	0.400		0.15451	0.00316	0.01082	Fujii,NPB120,395-77	
	0.410		0.14640	0.00380		Vonholtey,NPB70,379-74	
						Fujii,NPB120,395-77	

IX.2  $\gamma$ : Cross section data

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>152. <math>\gamma n \rightarrow p \pi^-</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.413	0.022		0.11920	0.00680		Chiefari,NCL13,129-75	
0.414			0.14120	0.00480		Carbonara,NCA13,59-73	
0.420			0.11500	0.00540	0.00575	Benz,NPB65,158-73	
0.420			0.14200	0.00430		Fujii,NPB120,395-77	
0.420	0.020		0.12170	0.01240		Hilpert,NPB8,535-68	
				-0.00850			
0.430			0.14340	0.00640		Fujii,NPB120,395-77	
0.440			0.12770	0.00400		Fujii,NPB120,395-77	
0.450			0.12670	0.00450		Fujii,NPB120,395-77	
0.456			0.11130	0.00460		Carbonara,NCA13,59-73	
0.460			0.10550	0.00540	0.00530	Benz,NPB65,158-73	
0.460			0.11690	0.00380		Fujii,NPB120,395-77	
0.460	0.020		0.09950	0.01040		Hilpert,NPB8,535-68	
				-0.00730			
0.470			0.12330	0.00330		Fujii,NPB120,395-77	
0.490			0.10930	0.00210		Fujii,NPB120,395-77	
0.499			0.10270	0.00480		Carbonara,NCA13,59-73	
0.500			0.10280	0.00550	0.00515	Benz,NPB65,158-73	
0.500	0.020		0.09210	0.00980		Hilpert,NPB8,535-68	
				-0.00700			
0.515			0.10510	0.00270		Fujii,NPB120,395-77	
0.540			0.08580	0.00560	0.00429	Benz,NPB65,158-73	
0.540			0.10990	0.00230		Fujii,NPB120,395-77	
0.540	0.020		0.08580	0.00930		Hilpert,NPB8,535-68	
				-0.00680			
0.541			0.09660	0.00490		Carbonara,NCA13,59-73	
0.565			0.10780	0.00270		Fujii,NPB120,395-77	
0.580			0.09240	0.00590	0.00462	Benz,NPB65,158-73	
0.580	0.020		0.08030	0.00880		Hilpert,NPB8,535-68	
				-0.00660			
0.584			0.10270	0.00530		Carbonara,NCA13,59-73	
0.590			0.10520	0.00270		Fujii,NPB120,395-77	
0.600			0.09363	0.00163		Scheffler,NPB75,125-74	
0.615			0.10920	0.00510		Fujii,NPB120,395-77	
0.620			0.08780	0.00560	0.00439	Benz,NPB65,158-73	
0.620			0.09448	0.00177		Scheffler,NPB75,125-74	
0.620	0.020		0.09080	0.00990		Hilpert,NPB8,535-68	
				-0.00750			
0.627			0.10040	0.00560		Carbonara,NCA13,59-73	
0.640			0.09328	0.00165		Scheffler,NPB75,125-74	
0.640			0.10420	0.00240		Fujii,NPB120,395-77	
0.660			0.09330	0.00650	0.00466	Benz,NPB65,158-73	
0.660			0.09615	0.00164		Scheffler,NPB75,125-74	
0.660	0.020		0.08720	0.00970		Hilpert,NPB8,535-68	
				-0.00750			
0.665			0.10900	0.00350		Fujii,NPB120,395-77	
0.669			0.08730	0.00560		Carbonara,NCA13,59-73	
0.680			0.09798	0.00164		Scheffler,NPB75,125-74	
0.690			0.11130	0.00240		Fujii,NPB120,395-77	
0.700			0.09720	0.00650	0.00486	Benz,NPB65,158-73	
0.700			0.09664	0.00160		Scheffler,NPB75,125-74	
0.700	0.020		0.08910	0.01000		Hilpert,NPB8,535-68	
				-0.00770			
0.712			0.07410	0.00540		Carbonara,NCA13,59-73	
0.715			0.10790	0.00330		Fujii,NPB120,395-77	
0.720			0.09115	0.00158		Scheffler,NPB75,125-74	
0.740			0.07790	0.00670	0.00389	Benz,NPB65,158-73	
0.740			0.08165	0.00163		Scheffler,NPB75,125-74	
0.740			0.09500	0.00240		Fujii,NPB120,395-77	
0.740	0.020		0.07870	0.00910		Hilpert,NPB8,535-68	
				-0.00700			
0.754			0.05750	0.00500		Carbonara,NCA13,59-73	
0.760			0.06872	0.00168		Scheffler,NPB75,125-74	
0.765			0.07500	0.00240		Fujii,NPB120,395-77	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>152. <math>\gamma n \rightarrow p \pi^-</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.780		0.05180	0.00550	0.00259		Benz,NPB65,158-73	
0.780		0.05843	0.00101			Scheffler,NPB75,125-74	
0.780	0.020	0.05750	0.00710			Hilpert,NPB8,535-68	
			-0.00580				
0.790		0.05410	0.00170			Fujii,NPB120,395-77	
0.800		0.04996	0.00093			Scheffler,NPB75,125-74	
0.825		0.04146	0.00083			Scheffler,NPB75,125-74	
0.850		0.03531	0.00074			Scheffler,NPB75,125-74	
0.875		0.03205	0.00065			Scheffler,NPB75,125-74	
0.900		0.03173	0.00074			Scheffler,NPB75,125-74	
0.925		0.03015	0.00060			Scheffler,NPB75,125-74	
0.950		0.02818	0.00068			Scheffler,NPB75,125-74	
0.975		0.02856	0.00076			Scheffler,NPB75,125-74	
1.000		0.02884	0.00072			Scheffler,NPB75,125-74	
1.025		0.02749	0.00064			Scheffler,NPB75,125-74	
1.050		0.02530	0.00260	0.00126		Benz,NPB65,158-73	
1.050		0.02616	0.00070			Scheffler,NPB75,125-74	
1.050	0.050	0.02640	0.00340			Hilpert,NPB8,535-68	
			-0.00290				
1.075		0.02406	0.00091			Scheffler,NPB75,125-74	
1.100		0.02303	0.00076			Scheffler,NPB75,125-74	
1.125		0.02088	0.00057			Scheffler,NPB75,125-74	
1.150		0.01630	0.00240	0.00081		Benz,NPB65,158-73	
1.150		0.01871	0.00042			Scheffler,NPB75,125-74	
1.150	0.050	0.01610	0.00250			Hilpert,NPB8,535-68	
			-0.00220				
1.175		0.01611	0.00056			Scheffler,NPB75,125-74	
1.200		0.01517	0.00044			Scheffler,NPB75,125-74	
1.225		0.01441	0.00044			Scheffler,NPB75,125-74	
1.250		0.01354	0.00049			Scheffler,NPB75,125-74	
1.250	0.050	0.01280	0.00220			Hilpert,NPB8,535-68	
			-0.00200				
1.350	0.050	0.01340	0.00240			Hilpert,NPB8,535-68	
			-0.00220				
1.450	0.050	0.01060	0.00210			Hilpert,NPB8,535-68	
			-0.00200				
1.700	0.300	0.00620	0.00090			Hilpert,NPB8,535-68	
	-0.200		-0.00080				
7.500			0.00050	0.00020		Alexander,NPB68,1-74	
Threshold	0.149						
<b>153. <math>\gamma n \rightarrow p \pi^- \rho^0</math></b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
4.300		0.00180	0.00060			Eisenberg,NPB25,499-71	
7.100		0.00210	0.00030			Alexander,NPB115,48-76	
Threshold	1.373						
<b>154. <math>\gamma n \rightarrow p \pi^- \omega</math></b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.850	0.250	0.00180	0.00070			Benz,NPB115,385-76	
3.900	1.400	0.00160	0.00050			Benz,NPB115,385-76	
4.300		0.00140	0.00050			Eisenberg,NPB25,499-71	
Threshold	1.375						
<b>155. <math>\gamma n \rightarrow p \rho^-</math></b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
4.400	0.900	0.00080	0.00060			Hilpert,NPB21,93-70	
Threshold	1.083						
<b>156. <math>\gamma n \rightarrow p A_2^-</math></b>							
$A_2^- \rightarrow \rho^0 \pi^-$	4.400	0.900	0.00100	0.00040		(Cross section units: $10^{-27} \text{ cm}^2$ )	
...corrected for branching ratio...			0.00285	0.00114		Benz,NPB115,385-76	
Threshold	2.219						

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>157. <math>\gamma n \rightarrow n \pi^+ \pi^-</math></b>							
	0.373	0.019	0.00430	0.00080		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.416	0.019	0.00660	0.00110		Carbonara,NCA36,219-76	
	0.458	0.019	0.01150	0.00150		Carbonara,NCA36,219-76	
	0.501	0.019	0.02280	0.00220		Carbonara,NCA36,219-76	
	0.544	0.019	0.03610	0.00290		Carbonara,NCA36,219-76	
	0.586	0.019	0.04730	0.00360		Carbonara,NCA36,219-76	
	0.629	0.019	0.05190	0.00390		Carbonara,NCA36,219-76	
	0.672	0.018	0.05670	0.00440		Carbonara,NCA36,219-76	
	0.714	0.019	0.06090	0.00470		Carbonara,NCA36,219-76	
	0.756	0.019	0.05360	0.00480		Carbonara,NCA36,219-76	
	0.799	0.019	0.04690	0.00490		Carbonara,NCA36,219-76	
	0.842	0.019	0.05570	0.00600		Carbonara,NCA36,219-76	
	0.885	0.018	0.05520	0.00700		Carbonara,NCA36,219-76	
	0.927	0.019	0.05320	0.00830		Carbonara,NCA36,219-76	
	7.500	0.250	0.01500	0.00150		Alexander,NPB104,397-76	
Threshold	0.322						
<b>158. <math>\gamma n \rightarrow n \pi^+ \pi^- \rho^0</math></b>							
	4.300		0.00140	0.00120		(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	1.638					Eisenberg,NPB25,499-71	
<b>159. <math>\gamma n \rightarrow n 2 \pi^+ 2 \pi^-</math></b>							
	4.300		0.00760	0.00100		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.00590	0.00070		Eisenberg,NPB25,499-71	
Threshold	0.728					Alexander,NPB68,1-74	
<b>160. <math>\gamma n \rightarrow \Delta^{++}_{1236} 2 \pi^-</math></b>							
	1.250	0.150	0.00180	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	1.450	0.350	0.00080	0.00030		Benz,NPB115,385-76	
	1.500	0.100	0.00180	0.00100		Eisenberg,NPB25,499-71	
	1.700	0.100	0.00330	0.00110		Benz,NPB115,385-76	
	1.950	0.150	0.00320	0.00080		Benz,NPB115,385-76	
	2.300	0.200	0.00220	0.00100		Benz,NPB115,385-76	
	2.650	0.850	0.00270	0.00100		Eisenberg,NPB25,499-71	
	3.000	0.500	0.00080	0.00050		Benz,NPB115,385-76	
	4.400	0.900	0.00040	0.00030		Benz,NPB115,385-76	
Threshold	0.753						
<b>161. <math>\gamma n \rightarrow \Delta^+_{1236} \pi^-</math></b>							
$\Delta^+_{1236} \rightarrow p \pi^0$	0.456	0.107	0.00390	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	-	-0.106				Carbonara,NCA36,219-76	
...corrected for branching ratio...			0.00589	0.00091			
$\Delta^+_{1236} \rightarrow \text{idem}$	0.605	0.043	0.01410	0.00280		Carbonara,NCA36,219-76	
	-	-0.042					
...corrected for branching ratio...			0.02128	0.00423			
$\Delta^+_{1236} \rightarrow \text{idem}$	0.701	0.053	0.01670	0.00390		Carbonara,NCA36,219-76	
...corrected for branching ratio...			0.02520	0.00589			
$\Delta^+_{1236} \rightarrow \text{idem}$	0.807	0.054	0.01870	0.00650		Carbonara,NCA36,219-76	
	-	-0.053					
...corrected for branching ratio...			0.02822	0.00981			
$\Delta^+_{1236} \rightarrow \text{idem}$	0.940	0.080	0.01090	0.00970		Carbonara,NCA36,219-76	
	-	-0.079					
...corrected for branching ratio...			0.01645	0.01464			
Threshold	0.538						
<b>162. <math>\gamma n \rightarrow \Delta^0_{1236} \pi^+ \pi^-</math></b>							
$\Delta^0_{1236} \rightarrow p \pi^-$	1.450	0.350	0.00080	0.00060		(Cross section units: $10^{-27} \text{ cm}^2$ )	
	-	-0.350				Eisenberg,NPB25,499-71	
...corrected for branching ratio...			0.00241	0.00181			
$\Delta^0_{1236} \rightarrow \text{idem}$	1.500	0.100	0.00100	0.00070		Benz,NPB115,385-76	
	-	-0.100					
...corrected for branching ratio...			0.00302	0.00211			
$\Delta^0_{1236} \rightarrow \text{idem}$	2.650	0.850	0.00190	0.00180		Eisenberg,NPB25,499-71	
	-	-0.850					
...corrected for branching ratio...			0.00573	0.00543			
$\Delta^0_{1236} \rightarrow \text{idem}$	3.000	0.500	0.00140	0.00090		Benz,NPB115,385-76	
	-	-0.500					
...corrected for branching ratio...			0.00423	0.00272			

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>162. <math>\gamma n \rightarrow \Delta^0_{1236} \pi^+ \pi^-</math> (Continued)</b>							
$\Delta^0_{1236} \rightarrow p \pi^-$	4.300		0.00080	0.00070		(Cross section units: $10^{-27} \text{ cm}^2$ )	
...corrected for branching ratio...			0.00241	0.00211		Eisenberg,NPB25,499-71	
Threshold	0.753						
<b>163. <math>\gamma n \rightarrow \Delta^-_{1236} \pi^+</math></b>							
0.466	0.054	0.01110	0.00120			(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.552	0.032	0.02930	0.00300			Carbonara,NCA36,219-76	
0.615	0.033	0.03850	0.00430			Carbonara,NCA36,219-76	
0.679	0.033	0.02390	0.00850			Carbonara,NCA36,219-76	
0.743	0.032	0.02940	0.00670			Carbonara,NCA36,219-76	
0.807	0.032	0.02290	0.00870			Carbonara,NCA36,219-76	
0.892	0.054	0.02560	0.00790			Carbonara,NCA36,219-76	
Threshold	0.538						
<b>164. <math>\gamma n \rightarrow \Delta^-_{1236} \pi^+ \rho^0</math></b>							
4.300		0.00050	0.00040			(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	1.981					Eisenberg,NPB25,499-71	
<b>165. <math>\gamma n \rightarrow \Delta^-_{1236} 2 \pi^+ \pi^-</math></b>							
4.300		0.00310	0.00100			(Cross section units: $10^{-27} \text{ cm}^2$ )	
Threshold	0.990					Eisenberg,NPB25,499-71	
<b>166. <math>\gamma d \rightarrow \text{Total}</math></b>							
0.265	0.017	0.75240	0.00890			(Cross section units: $10^{-27} \text{ cm}^2$ )	
0.290	0.017	0.85370	0.00960			Armstrong,NPB41,445-72	
0.315	0.017	0.90420	0.01010			Armstrong,NPB41,445-72	
0.340	0.017	0.89570	0.01020			Armstrong,NPB41,445-72	
0.365	0.017	0.77600	0.01010			Armstrong,NPB41,445-72	
0.390	0.017	0.67620	0.00980			Armstrong,NPB41,445-72	
0.415	0.017	0.56680	0.00920			Armstrong,NPB41,445-72	
0.440	0.017	0.50900	0.00880			Armstrong,NPB41,445-72	
0.465	0.017	0.42880	0.00860			Armstrong,NPB41,445-72	
0.490	0.017	0.42190	0.00860			Armstrong,NPB41,445-72	
0.515	0.017	0.37570	0.00820			Armstrong,NPB41,445-72	
0.540	0.017	0.35450	0.00810			Armstrong,NPB41,445-72	
0.565	0.017	0.40410	0.00660			Armstrong,NPB41,445-72	
0.590	0.017	0.41940	0.00660			Armstrong,NPB41,445-72	
0.615	0.017	0.42940	0.00670			Armstrong,NPB41,445-72	
0.640	0.017	0.45810	0.00700			Armstrong,NPB41,445-72	
0.665	0.017	0.47330	0.00720			Armstrong,NPB41,445-72	
0.690	0.017	0.49470	0.00750			Armstrong,NPB41,445-72	
0.715	0.017	0.46960	0.00760			Armstrong,NPB41,445-72	
0.740	0.017	0.49600	0.00770			Armstrong,NPB41,445-72	
0.765	0.017	0.45840	0.00770			Armstrong,NPB41,445-72	
0.790	0.017	0.44700	0.00780			Armstrong,NPB41,445-72	
0.815	0.017	0.43240	0.00780			Armstrong,NPB41,445-72	
0.840	0.017	0.40220	0.00780			Armstrong,NPB41,445-72	
0.865	0.017	0.39070	0.00770			Armstrong,NPB41,445-72	
0.890	0.017	0.37890	0.00750			Armstrong,NPB41,445-72	
0.915	0.017	0.35580	0.00760			Armstrong,NPB41,445-72	
0.940	0.017	0.34000	0.00750			Armstrong,NPB41,445-72	
0.965	0.017	0.35990	0.00760			Armstrong,NPB41,445-72	
0.990	0.017	0.35860	0.00770			Armstrong,NPB41,445-72	
1.015	0.017	0.35470	0.00790			Armstrong,NPB41,445-72	
1.040	0.017	0.34660	0.00790			Armstrong,NPB41,445-72	
1.065	0.017	0.34290	0.00800			Armstrong,NPB41,445-72	
1.090	0.017	0.33610	0.00810			Armstrong,NPB41,445-72	
1.115	0.017	0.32390	0.00790			Armstrong,NPB41,445-72	
1.140	0.017	0.30670	0.00770			Armstrong,NPB41,445-72	
1.165	0.017	0.30240	0.00790			Armstrong,NPB41,445-72	
1.190	0.017	0.29100	0.00800			Armstrong,NPB41,445-72	
1.215	0.017	0.28750	0.00820			Armstrong,NPB41,445-72	
1.240	0.017	0.29150	0.00800			Armstrong,NPB41,445-72	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>166. <math>\gamma d \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
1.265	0.017		0.28670	0.00810		Armstrong,NPB41,445-72	
1.290	0.017		0.29420	0.00830		Armstrong,NPB41,445-72	
1.315	0.017		0.27940	0.00820		Armstrong,NPB41,445-72	
1.340	0.017		0.29910	0.00860		Armstrong,NPB41,445-72	
1.365	0.017		0.28700	0.00840		Armstrong,NPB41,445-72	
1.390	0.017		0.29330	0.00880		Armstrong,NPB41,445-72	
1.415	0.017		0.27540	0.00840		Armstrong,NPB41,445-72	
1.440	0.017		0.27950	0.00840		Armstrong,NPB41,445-72	
1.450			0.29430	0.01000		Meyer,PL33B,189-70	
1.465	0.017		0.27570	0.00870		Armstrong,NPB41,445-72	
1.490	0.017		0.28930	0.00900		Armstrong,NPB41,445-72	
1.515	0.017		0.29120	0.00670		Armstrong,NPB41,445-72	
1.540	0.017		0.28060	0.00660		Armstrong,NPB41,445-72	
1.565	0.017		0.29320	0.00660		Armstrong,NPB41,445-72	
1.590	0.017		0.30380	0.00700		Armstrong,NPB41,445-72	
1.615	0.017		0.28760	0.00690		Armstrong,NPB41,445-72	
1.640	0.017		0.27630	0.00670		Armstrong,NPB41,445-72	
1.665	0.017		0.28510	0.00680		Armstrong,NPB41,445-72	
1.690	0.017		0.27310	0.00660		Armstrong,NPB41,445-72	
1.715	0.017		0.29070	0.00680		Armstrong,NPB41,445-72	
1.740	0.017		0.27400	0.00690		Armstrong,NPB41,445-72	
1.750			0.28570	0.00950		Meyer,PL33B,189-70	
1.765	0.017		0.28780	0.00820		Armstrong,NPB41,445-72	
1.790	0.017		0.28680	0.00830		Armstrong,NPB41,445-72	
1.815	0.017		0.30220	0.00840		Armstrong,NPB41,445-72	
1.840	0.017		0.27550	0.00840		Armstrong,NPB41,445-72	
1.865	0.017		0.27200	0.00840		Armstrong,NPB41,445-72	
1.890	0.017		0.27510	0.00850		Armstrong,NPB41,445-72	
1.915	0.017		0.26870	0.00830		Armstrong,NPB41,445-72	
1.940	0.017		0.29140	0.00860		Armstrong,NPB41,445-72	
1.965	0.017		0.23620	0.00840		Armstrong,NPB41,445-72	
1.990	0.017		0.26870	0.00860		Armstrong,NPB41,445-72	
2.000			0.26520	0.00500	0.00532	Michalowski,PRL39,737-77	
2.015	0.010		0.28360	0.00880		Armstrong,NPB41,445-72	
2.040	0.010		0.26370	0.00870		Armstrong,NPB41,445-72	
2.050			0.26810	0.00850		Meyer,PL33B,189-70	
2.065	0.010		0.24940	0.01080		Armstrong,NPB41,445-72	
2.090	0.010		0.28850	0.01100		Armstrong,NPB41,445-72	
2.115	0.010		0.26400	0.01070		Armstrong,NPB41,445-72	
2.140	0.010		0.26400	0.01060		Armstrong,NPB41,445-72	
2.165	0.010		0.26880	0.01080		Armstrong,NPB41,445-72	
2.190	0.010		0.26770	0.01110		Armstrong,NPB41,445-72	
2.200	0.010		0.26450	0.00400		Armstrong,NPB41,445-72	
2.215	0.010		0.24690	0.01090		Armstrong,NPB41,445-72	
2.240	0.010		0.27570	0.01160		Armstrong,NPB41,445-72	
2.265	0.010		0.26370	0.01120		Armstrong,NPB41,445-72	
2.290	0.010		0.26530	0.01180		Armstrong,NPB41,445-72	
2.315	0.010		0.25660	0.01150		Armstrong,NPB41,445-72	
2.340	0.010		0.25110	0.01200		Armstrong,NPB41,445-72	
2.350			0.26670	0.00990		Meyer,PL33B,189-70	
2.365	0.010		0.25480	0.01160		Armstrong,NPB41,445-72	
2.390	0.010		0.26470	0.01150		Armstrong,NPB41,445-72	
2.400	0.010		0.25900	0.00410		Armstrong,NPB41,445-72	
2.415	0.010		0.26090	0.01160		Armstrong,NPB41,445-72	
2.440	0.010		0.26610	0.01180		Armstrong,NPB41,445-72	
2.465	0.010		0.27280	0.01180		Armstrong,NPB41,445-72	
2.490	0.010		0.24470	0.01130		Armstrong,NPB41,445-72	
2.515	0.010		0.23410	0.01230		Armstrong,NPB41,445-72	
2.540	0.010		0.26930	0.01170		Armstrong,NPB41,445-72	
2.565	0.010		0.24740	0.01220		Armstrong,NPB41,445-72	
2.590	0.010		0.26780	0.01170		Armstrong,NPB41,445-72	
2.600	0.010		0.25010	0.00410		Armstrong,NPB41,445-72	
2.615	0.010		0.23360	0.01160		Armstrong,NPB41,445-72	
2.640	0.010		0.27440	0.01170		Armstrong,NPB41,445-72	

Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{lab} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>166. <math>\gamma d \rightarrow</math> Total (Continued)</b>							
						(Cross section units: $10^{-27}$ cm $^2$ )	
2.650		0.26820	0.00970			Meyer,PL33B,189-70	
2.665	0.010	0.23910	0.01190			Armstrong,NPB41,445-72	
2.690	0.010	0.23510	0.01220			Armstrong,NPB41,445-72	
2.715	0.010	0.25290	0.01210			Armstrong,NPB41,445-72	
2.740	0.010	0.23230	0.01290			Armstrong,NPB41,445-72	
2.765	0.010	0.27600	0.00770			Armstrong,NPB41,445-72	
2.790	0.010	0.26640	0.00750			Armstrong,NPB41,445-72	
2.800	0.010	0.25720	0.00300			Armstrong,NPB41,445-72	
2.815	0.010	0.25500	0.00710			Armstrong,NPB41,445-72	
2.840	0.010	0.25660	0.00750			Armstrong,NPB41,445-72	
2.865	0.010	0.26310	0.00720			Armstrong,NPB41,445-72	
2.890	0.010	0.25500	0.00730			Armstrong,NPB41,445-72	
2.915	0.010	0.25440	0.00760			Armstrong,NPB41,445-72	
2.940	0.010	0.26590	0.00750			Armstrong,NPB41,445-72	
2.950		0.26680	0.00870			Meyer,PL33B,189-70	
2.965	0.010	0.25890	0.00750			Armstrong,NPB41,445-72	
2.990	0.010	0.25320	0.00760			Armstrong,NPB41,445-72	
3.000	0.010	0.26030	0.00300			Armstrong,NPB41,445-72	
3.015	0.010	0.25940	0.00910			Armstrong,NPB41,445-72	
3.040	0.010	0.26560	0.00920			Armstrong,NPB41,445-72	
3.065	0.010	0.25470	0.00920			Armstrong,NPB41,445-72	
3.090	0.010	0.27030	0.00930			Armstrong,NPB41,445-72	
3.115	0.010	0.24890	0.00890			Armstrong,NPB41,445-72	
3.140	0.010	0.23930	0.00890			Armstrong,NPB41,445-72	
3.165	0.010	0.25720	0.00930			Armstrong,NPB41,445-72	
3.190	0.010	0.26520	0.00950			Armstrong,NPB41,445-72	
3.200	0.010	0.25520	0.00330			Armstrong,NPB41,445-72	
3.215	0.010	0.24950	0.00930			Armstrong,NPB41,445-72	
3.240	0.010	0.25720	0.00930			Armstrong,NPB41,445-72	
3.250		0.25290	0.00850			Meyer,PL33B,189-70	
3.265	0.010	0.24050	0.00960	0.00480		Armstrong,NPB41,445-72	
3.270		0.23960	0.00400			Michalowski,PRL39,737-77	
3.290	0.010	0.28410	0.01000			Armstrong,NPB41,445-72	
3.315	0.010	0.26480	0.00940			Armstrong,NPB41,445-72	
3.340	0.010	0.23970	0.00920			Armstrong,NPB41,445-72	
3.365	0.010	0.25570	0.00960			Armstrong,NPB41,445-72	
3.390	0.010	0.22660	0.00920			Armstrong,NPB41,445-72	
3.400	0.010	0.24420	0.00350			Armstrong,NPB41,445-72	
3.415	0.010	0.24270	0.00970			Armstrong,NPB41,445-72	
3.440	0.010	0.23050	0.00930			Armstrong,NPB41,445-72	
3.465	0.010	0.24080	0.00960			Armstrong,NPB41,445-72	
3.490	0.010	0.25290	0.00990			Armstrong,NPB41,445-72	
3.515	0.010	0.24870	0.00980			Armstrong,NPB41,445-72	
3.540	0.010	0.24240	0.00960			Armstrong,NPB41,445-72	
3.550		0.24390	0.00930			Meyer,PL33B,189-70	
3.565	0.010	0.25280	0.01000			Armstrong,NPB41,445-72	
3.590	0.010	0.26330	0.01050			Armstrong,NPB41,445-72	
3.600	0.010	0.24560	0.00350			Armstrong,NPB41,445-72	
3.615	0.010	0.23580	0.01010			Armstrong,NPB41,445-72	
3.640	0.010	0.23170	0.00960			Armstrong,NPB41,445-72	
3.665	0.010	0.24550	0.01010			Armstrong,NPB41,445-72	
3.690	0.010	0.24450	0.01020			Armstrong,NPB41,445-72	
3.700		0.23580	0.00810			Caldwell,PRD7,1362-73	
3.715	0.010	0.22820	0.01010			Armstrong,NPB41,445-72	
3.740	0.010	0.24690	0.00990			Armstrong,NPB41,445-72	
3.765	0.010	0.24730	0.01050			Armstrong,NPB41,445-72	
3.790	0.010	0.24220	0.01010			Armstrong,NPB41,445-72	
3.800	0.010	0.24410	0.00350			Armstrong,NPB41,445-72	
3.815	0.010	0.25880	0.01050			Armstrong,NPB41,445-72	
3.840	0.010	0.23180	0.00980			Armstrong,NPB41,445-72	
3.850		0.24820	0.01000			Meyer,PL33B,189-70	
3.865	0.010	0.24040	0.01040			Armstrong,NPB41,445-72	
3.890	0.010	0.25730	0.01060			Armstrong,NPB41,445-72	
3.915	0.010	0.24620	0.01010			Armstrong,NPB41,445-72	

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
<b>166. <math>\gamma d \rightarrow \text{Total}</math> (Continued)</b>							
						(Cross section units: $10^{-27} \text{ cm}^2$ )	
3.940	0.010		0.21350	0.01010		Armstrong,NPB41,445-72	
3.940			0.25110	0.00860		Caldwell,PRD7,1362-73	
3.965	0.010		0.25950	0.01070		Armstrong,NPB41,445-72	
3.990	0.010		0.26060	0.01100		Armstrong,NPB41,445-72	
4.000	0.010		0.23840	0.00360		Armstrong,NPB41,445-72	
4.015	0.010		0.23480	0.01050		Armstrong,NPB41,445-72	
4.040	0.010		0.22230	0.01020		Armstrong,NPB41,445-72	
4.065	0.010		0.23820	0.01100		Armstrong,NPB41,445-72	
4.090	0.010		0.23220	0.01090		Armstrong,NPB41,445-72	
4.115	0.010		0.23700	0.01120		Armstrong,NPB41,445-72	
4.140	0.010		0.20710	0.01060		Armstrong,NPB41,445-72	
4.150			0.24570	0.00800		Meyer,PL33B,189-70	
4.165	0.010		0.23340	0.01090		Armstrong,NPB41,445-72	
4.190	0.010		0.24930	0.01170		Armstrong,NPB41,445-72	
4.190			0.24020	0.00900		Caldwell,PRD7,1362-73	
4.215	0.010		0.22800	0.01140		Armstrong,NPB41,445-72	
4.300	0.700		0.24970	0.00700		Eisenberg,NPB104,61-76	
4.430			0.24420	0.01060		Caldwell,PRD7,1362-73	
4.450			0.23670	0.00830		Meyer,PL33B,189-70	
4.700			0.24280	0.00740		Caldwell,PRD7,1362-73	
4.750			0.23810	0.00820		Meyer,PL33B,189-70	
4.810			0.24400	0.00440	0.00488	Michalowski,PRL39,737-77	
5.010			0.22920	0.00750		Caldwell,PRD7,1362-73	
5.050			0.24840	0.00770		Meyer,PL33B,189-70	
5.320			0.23840	0.00800		Caldwell,PRD7,1362-73	
5.350			0.23450	0.00830		Meyer,PL33B,189-70	
5.630			0.23870	0.00930		Caldwell,PRD7,1362-73	
5.650			0.23210	0.00770		Meyer,PL33B,189-70	
5.950			0.22510	0.00800		Meyer,PL33B,189-70	
5.980			0.25020	0.01070		Caldwell,PRD7,1362-73	
6.210			0.22460	0.00420	0.00448	Michalowski,PRL39,737-77	
6.250			0.22760	0.00760		Meyer,PL33B,189-70	
6.370			0.23390	0.01060		Caldwell,PRD7,1362-73	
6.760			0.23820	0.01090		Caldwell,PRD7,1362-73	
7.160			0.23050	0.01160		Caldwell,PRD7,1362-73	
7.500			0.23400	0.01000		Alexander,NPB68,1-74	
7.680			0.21650	0.00870		Caldwell,PRD7,1362-73	
7.790			0.23200	0.00880	0.00464	Michalowski,PRL39,737-77	
8.180			0.23860	0.00930		Caldwell,PRD7,1362-73	
8.680			0.24380	0.00940		Caldwell,PRD7,1362-73	
8.950			0.24230	0.00660		Caldwell,PRD7,1362-73	
9.190			0.24570	0.01010		Caldwell,PRD7,1362-73	
9.510			0.21560	0.00480	0.00428	Michalowski,PRL39,737-77	
9.540			0.21820	0.00650		Caldwell,PRD7,1362-73	
9.750			0.22300	0.00620		Caldwell,PRD7,1362-73	
10.120			0.22620	0.00660		Caldwell,PRD7,1362-73	
10.390			0.23600	0.00660		Caldwell,PRD7,1362-73	
10.710			0.22050	0.00700		Caldwell,PRD7,1362-73	
11.030			0.23130	0.00660		Caldwell,PRD7,1362-73	
11.380			0.22300	0.00710		Caldwell,PRD7,1362-73	
11.670			0.20840	0.00690		Caldwell,PRD7,1362-73	
12.120			0.22290	0.00730		Caldwell,PRD7,1362-73	
12.390			0.22090	0.00500		Caldwell,PRD7,1362-73	
12.860			0.22800	0.00740		Caldwell,PRD7,1362-73	
13.200			0.22840	0.00510		Caldwell,PRD7,1362-73	
13.610			0.22010	0.00780		Caldwell,PRD7,1362-73	
14.010			0.20790	0.00510		Caldwell,PRD7,1362-73	
14.820			0.22240	0.00620		Caldwell,PRD7,1362-73	
14.920			0.22310	0.00720		Caldwell,PRD7,1362-73	
15.890			0.21110	0.00750		Caldwell,PRD7,1362-73	
16.870			0.22140	0.00860		Caldwell,PRD7,1362-73	
17.840			0.21080	0.01030		Caldwell,PRD7,1362-73	

SA = Systematic error included

SA

Reaction	$P_{\text{lab}}$ (GeV/c)	$\Delta P_{\text{lab}} \pm$	Cross Section	Error $\pm$	Syst $\pm$ Error	Reference	Foot- Notes
167. $\gamma d \rightarrow \text{Strange Particles}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	4.300	0.700	0.01710	0.00070		Eisenberg,NPB104,61-762	
168. $\gamma d \rightarrow 0 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.00800	0.00200		Alexander,NPB68,1-74	
169. $\gamma d \rightarrow 1 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.01500	0.00150		Alexander,NPB68,1-74	
170. $\gamma d \rightarrow 2 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.05440	0.00280		Bapu,PRD15,26-77	
	7.500		0.04300	0.00500		Alexander,NPB68,1-74	
171. $\gamma d \rightarrow 3 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.11940	0.00410		Bapu,PRD15,26-77	
	7.500		0.07600	0.00300		Alexander,NPB68,1-74	
172. $\gamma d \rightarrow 4 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.01610	0.00130		Bapu,PRD15,26-77	
	7.500		0.02000	0.00200		Alexander,NPB68,1-74	
173. $\gamma d \rightarrow 5 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.01960	0.00140		Bapu,PRD15,26-77	
	7.500		0.03700	0.00300		Alexander,NPB68,1-74	
174. $\gamma d \rightarrow 6 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.00080	0.00030		Bapu,PRD15,26-77	
	7.500		0.00500	0.00070		Alexander,NPB68,1-74	
175. $\gamma d \rightarrow 7 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.00080	0.00030		Bapu,PRD15,26-77	
	7.500		0.00700	0.00080		Alexander,NPB68,1-74	
176. $\gamma d \rightarrow 8 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		$0.350 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$		Alexander,NPB68,1-74	
177. $\gamma d \rightarrow 9 \text{ Prongs}$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		$0.650 \cdot 10^{-3}$	$0.150 \cdot 10^{-3}$		Alexander,NPB68,1-74	
178. $\gamma d \rightarrow d \pi^+ \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.00980	0.00070		Bapu,PRD15,26-77	
	4.300	0.700	0.01220	0.00120		Eisenberg,NPB104,61-76	
	7.500	0.250	0.01070	0.00060		Alexander,NPB104,397-76	
Threshold	0.301						
179. $\gamma d \rightarrow d 2 \pi^+ 2 \pi^-$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	7.500		0.00110	0.00030		Alexander,NPB68,1-74	
Threshold	0.644						
180. $\gamma d \rightarrow d \rho^0$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
	3.050	0.050	0.00930	0.00080		Bapu,PRD15,26-77	
	4.300	0.700	0.01110	0.00120		Eisenberg,NPB104,61-76	
	5.500		0.00980	0.00080		Gupta,PRD14,42-76	
	7.500	0.250	0.01010	0.00050		Alexander,NPB104,397-76	
Threshold	0.947						
181. $\gamma d \rightarrow d \omega$						(Cross section units: $10^{-27} \text{ cm}^2$ )	
$\omega \rightarrow [\pi^+ \pi^- \pi^0]$	3.900	0.800	0.00142	0.00053		Morris,NPB119,420-77	
	4.300	0.700	0.00180	0.00040		Eisenberg,NPB104,61-76	
$\omega \rightarrow \text{idem}$	7.500		$0.720 \cdot 10^{-3}$	$0.160 \cdot 10^{-3}$		Alexander,PL57B,487-75	
Threshold	0.949						

2 = Events with visible neutral strange particle decays

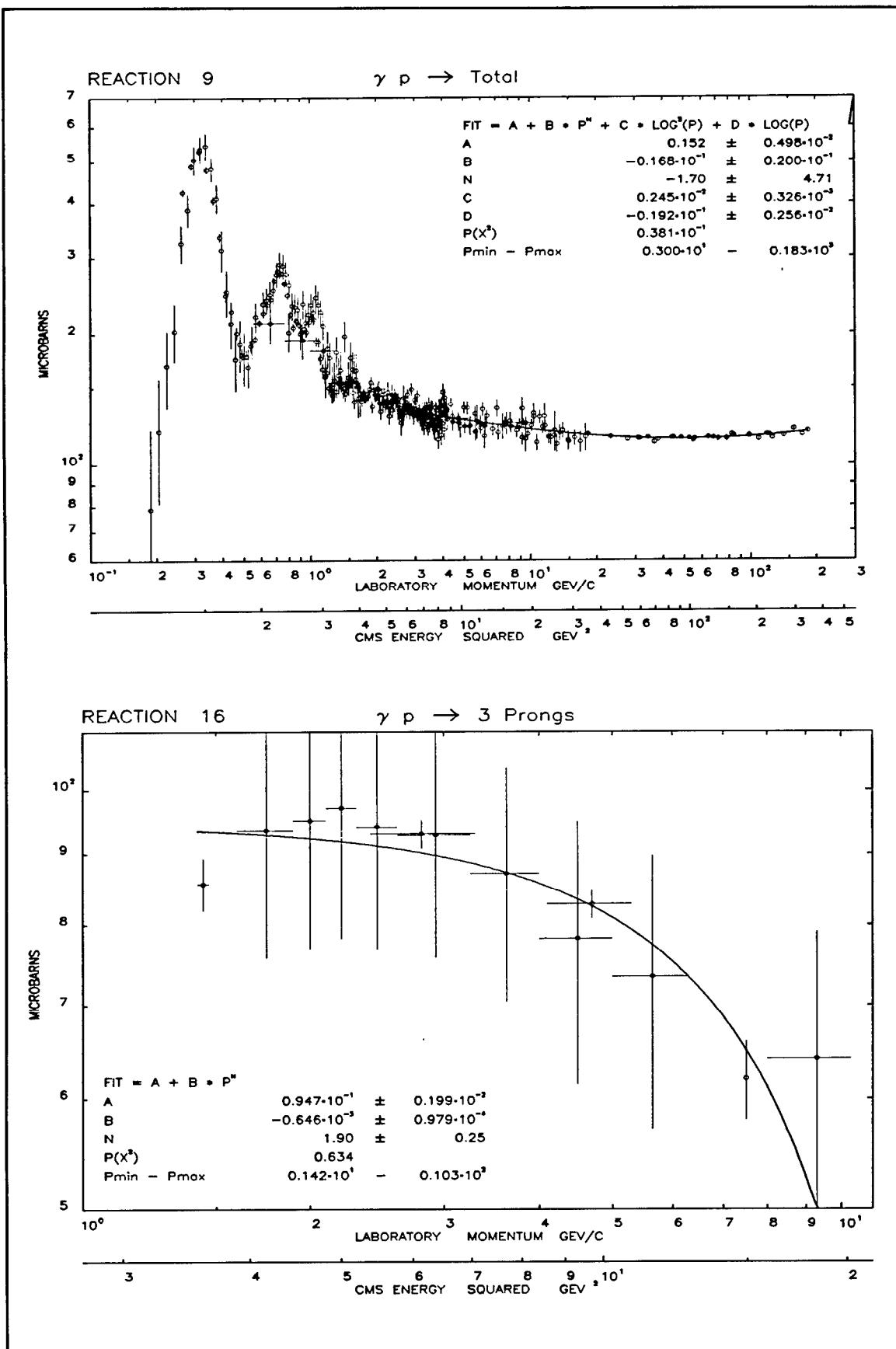


Reaction	P <sub>lab</sub> (GeV/c)	$\Delta P_{lab} \pm$	Cross Section	Error $\pm$  Syst $\pm$ Error	Reference	Foot- Notes
187. $\gamma d \rightarrow \psi$ Anything $\psi \rightarrow [e^+e^-]$	55.000	25.000	$0.375 \cdot 10^{-4}$	$0.820 \cdot 10^{-5}$	(Cross section units: $10^{-27} \text{ cm}^2$ ) Nash,PL36,1233-76	
188. $\gamma He \rightarrow 2d$					(Cross section units: $10^{-27} \text{ cm}^2$ )	
	0.201		0.00241	0.00032	Arends,PL62B,411-76	
	0.225		0.00129	0.00023	Arends,PL62B,411-76	
	0.253		0.00092	0.00020	Arends,PL62B,411-76	
	0.285		0.00104	0.00020	Arends,PL62B,411-76	
	0.320		$0.610 \cdot 10^{-3}$	$0.160 \cdot 10^{-3}$	Arends,PL62B,411-76	
Threshold	0.026					

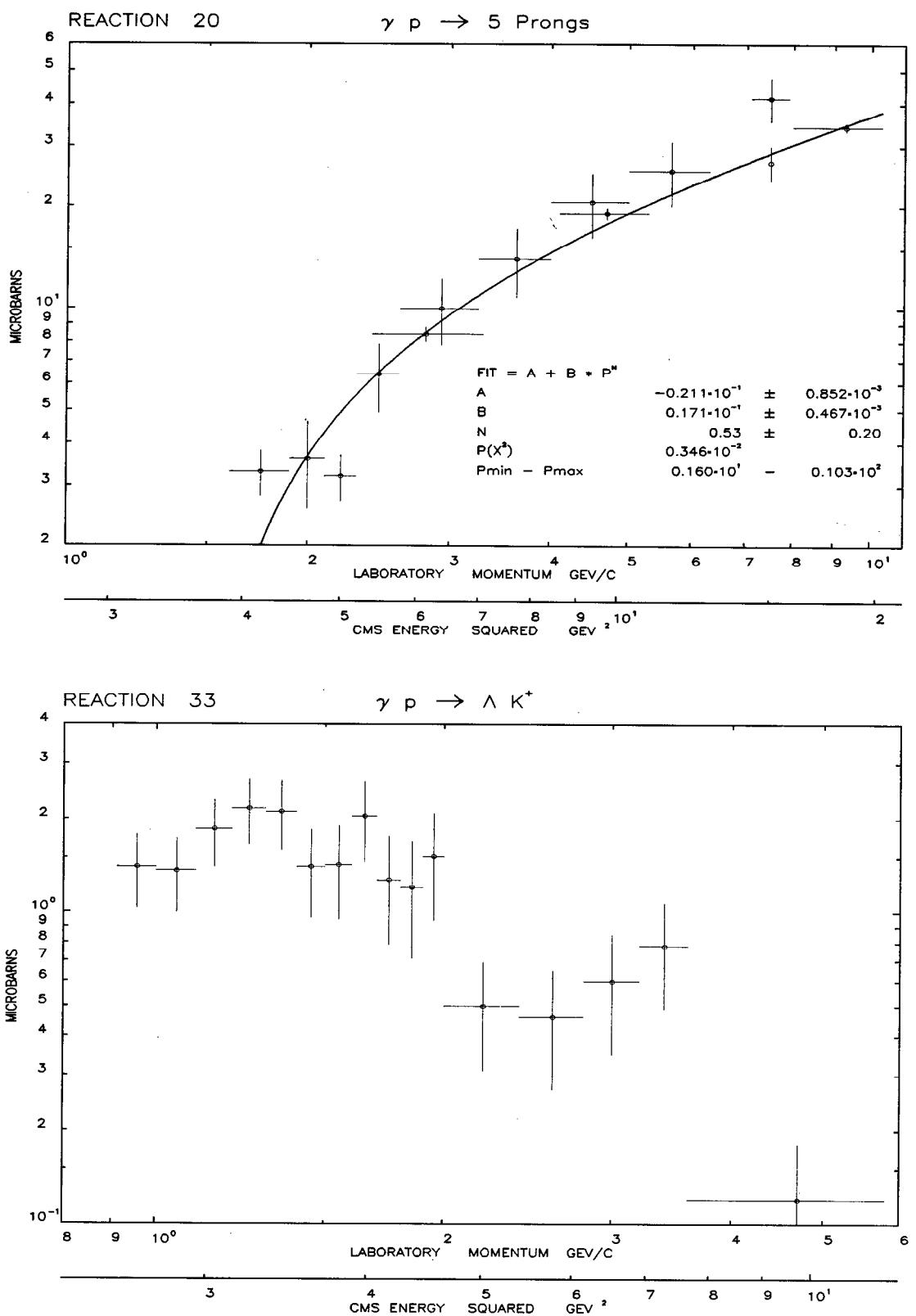
**IX. 3 Plots**

(pages 388 ··· 400)

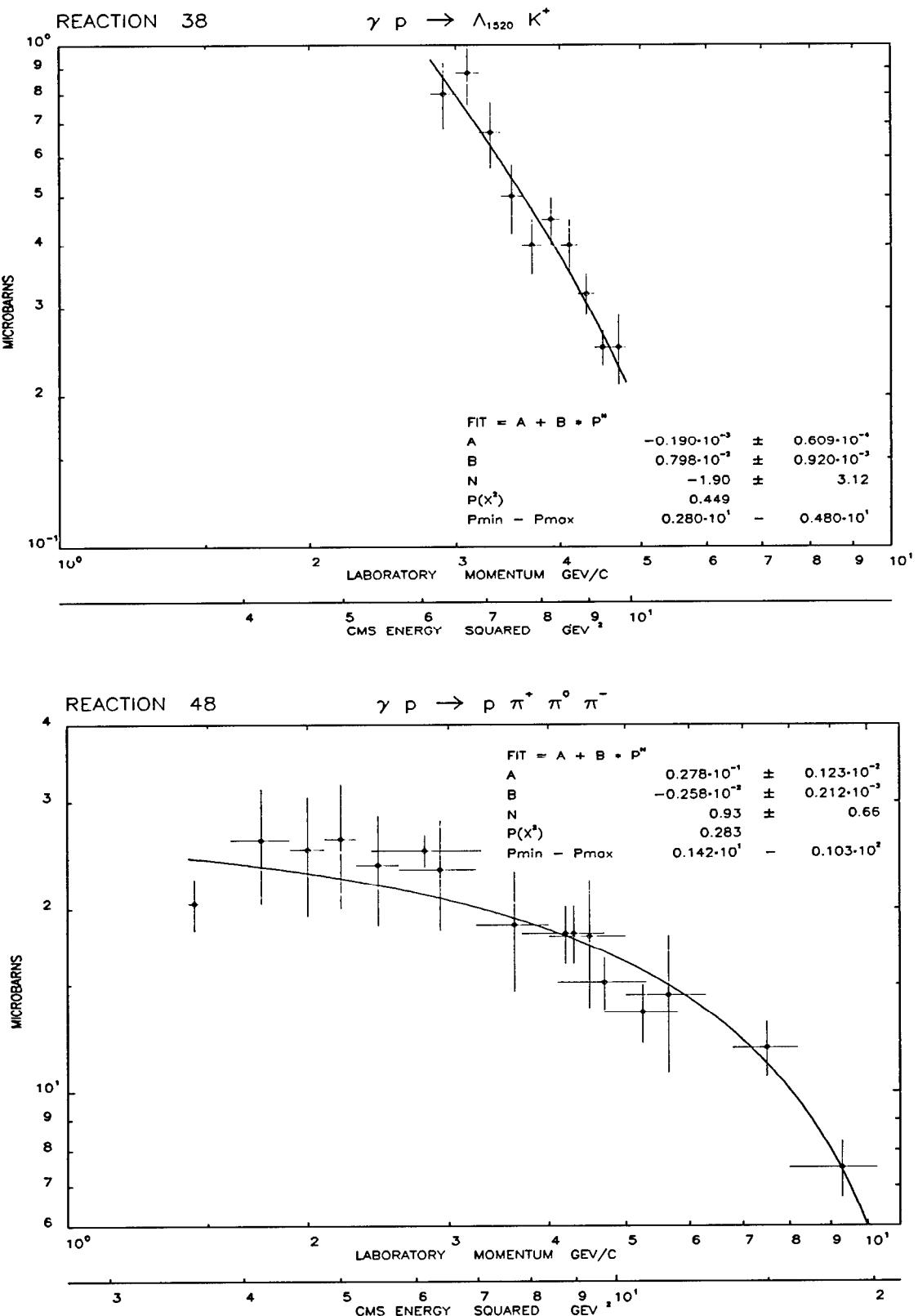
### IX.3 $\gamma$ : Plots



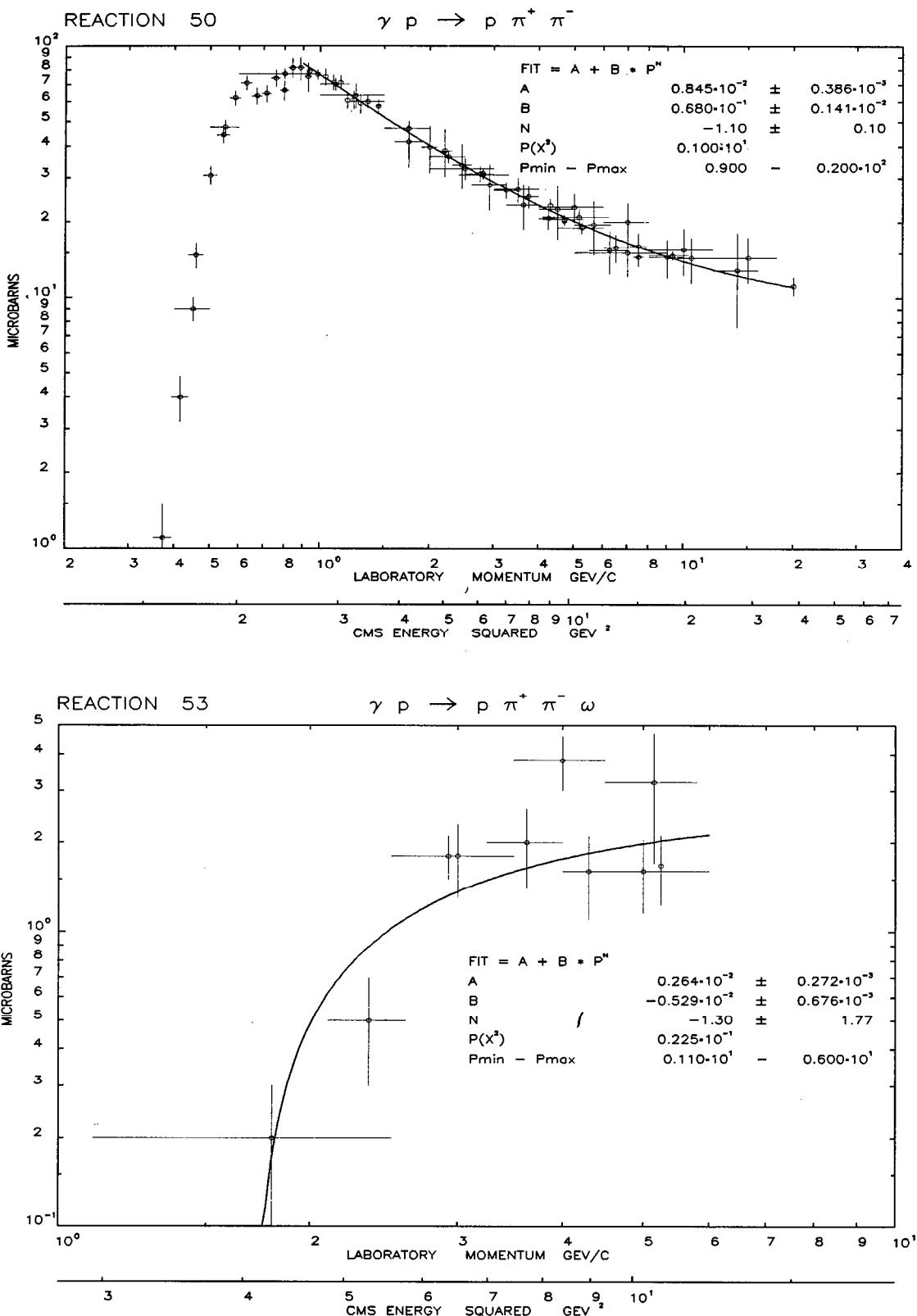
### IX.3 $\gamma$ : Plots



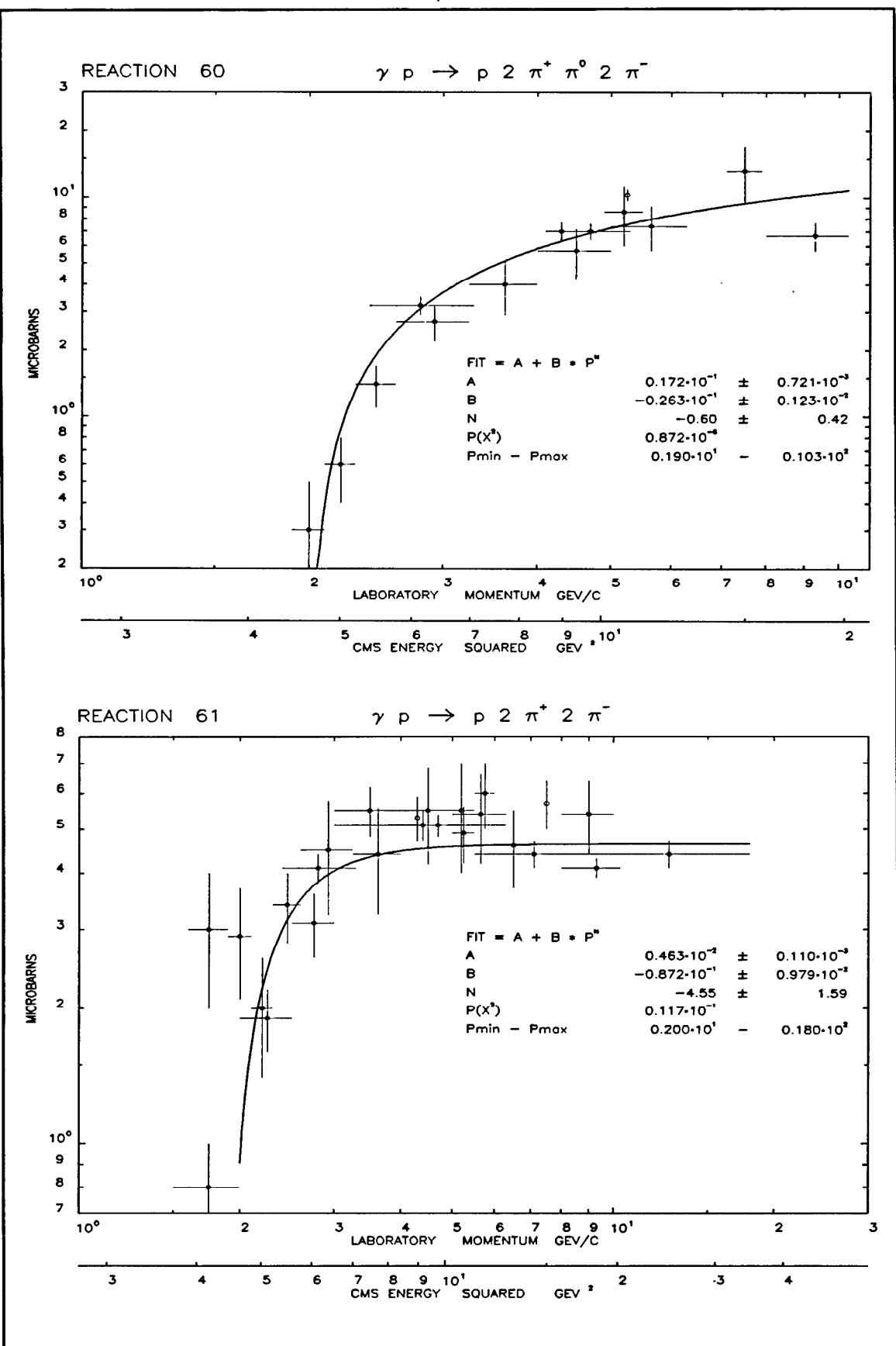
### IX.3 $\gamma$ : Plots



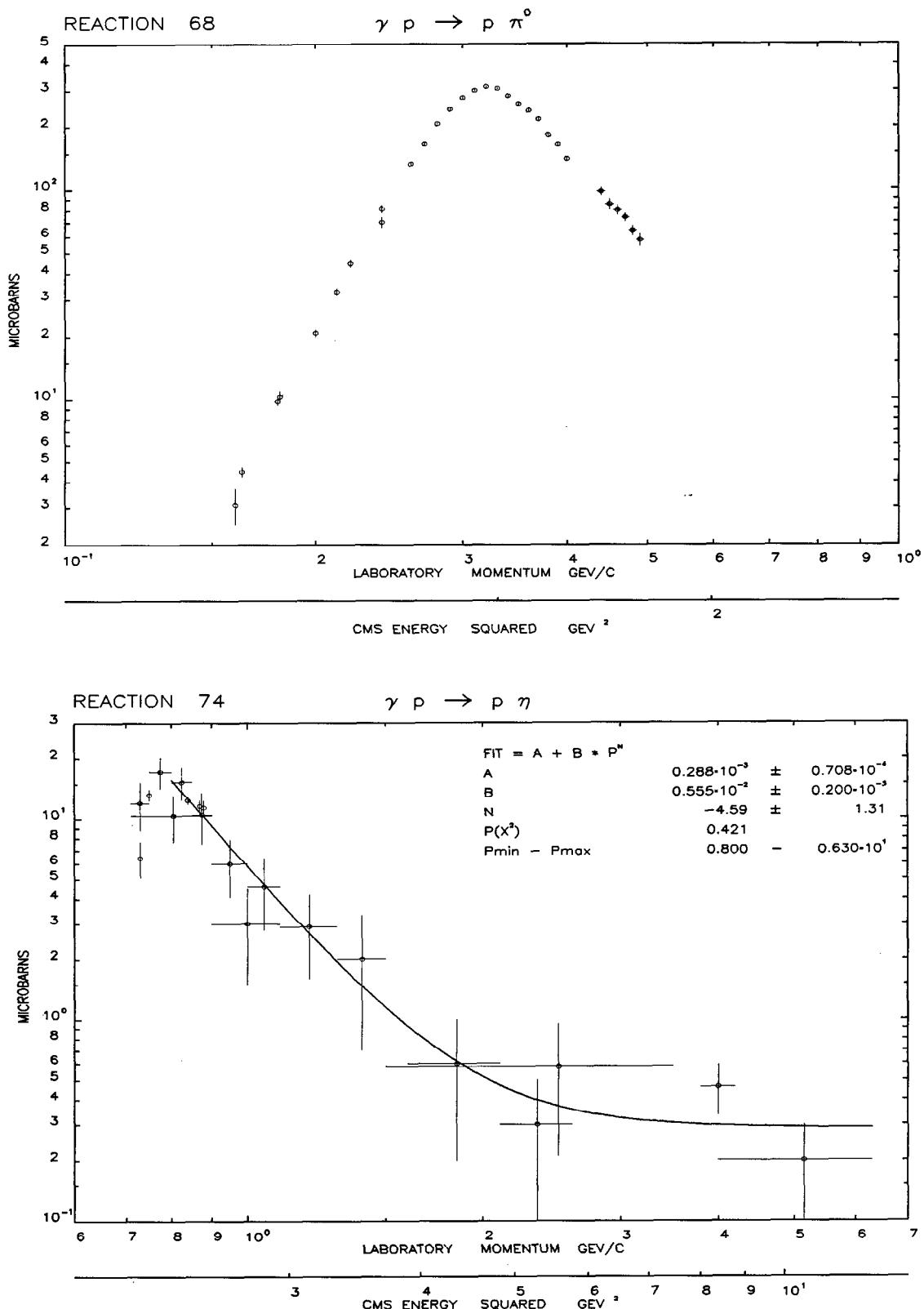
### IX.3 $\gamma$ : Plots



### IX.3 $\gamma$ : Plots

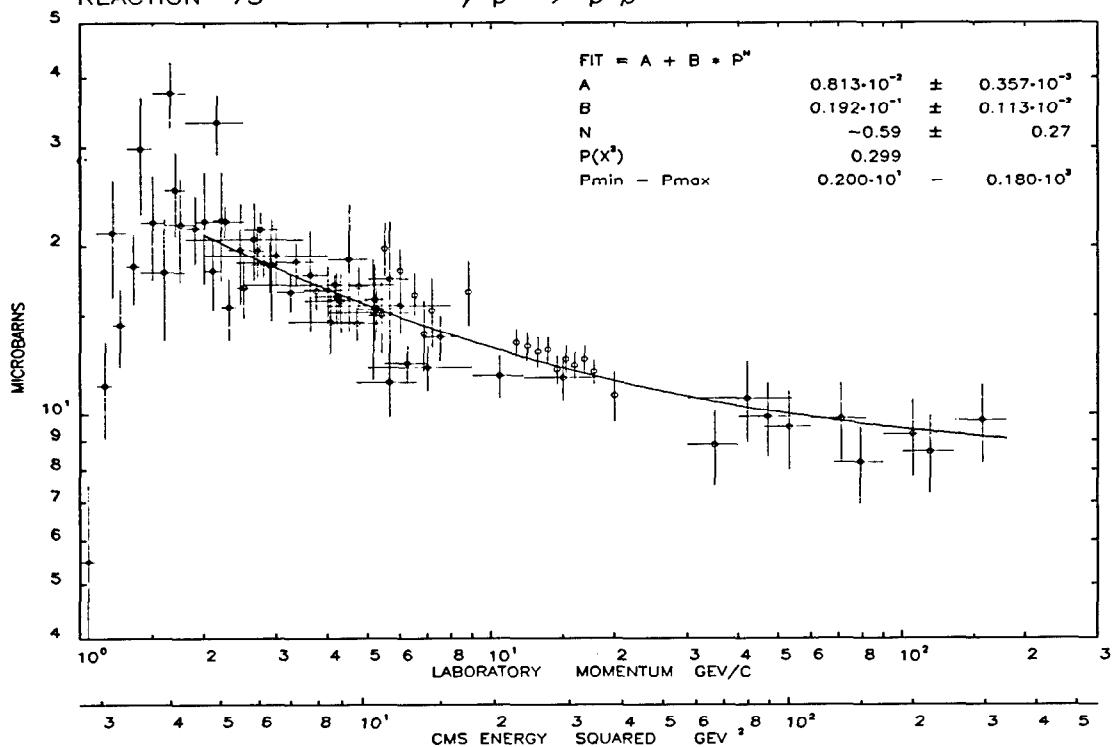
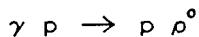


### IX.3 $\gamma$ : Plots

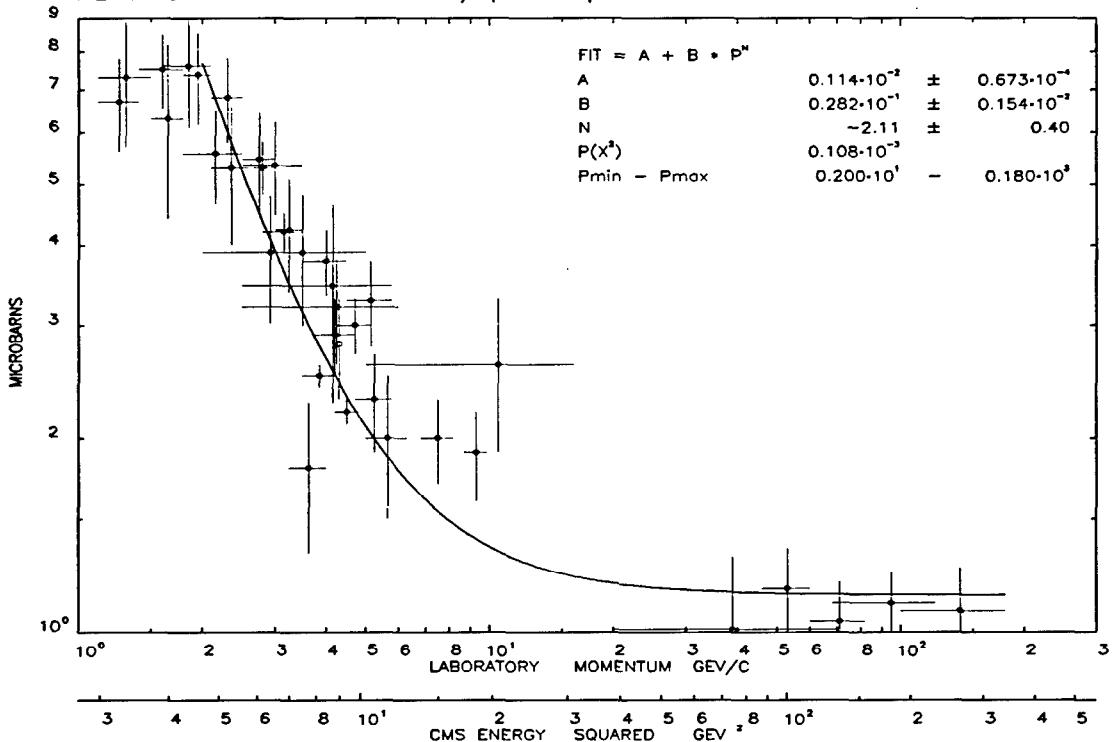
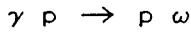


### IX.3 $\gamma$ : Plots

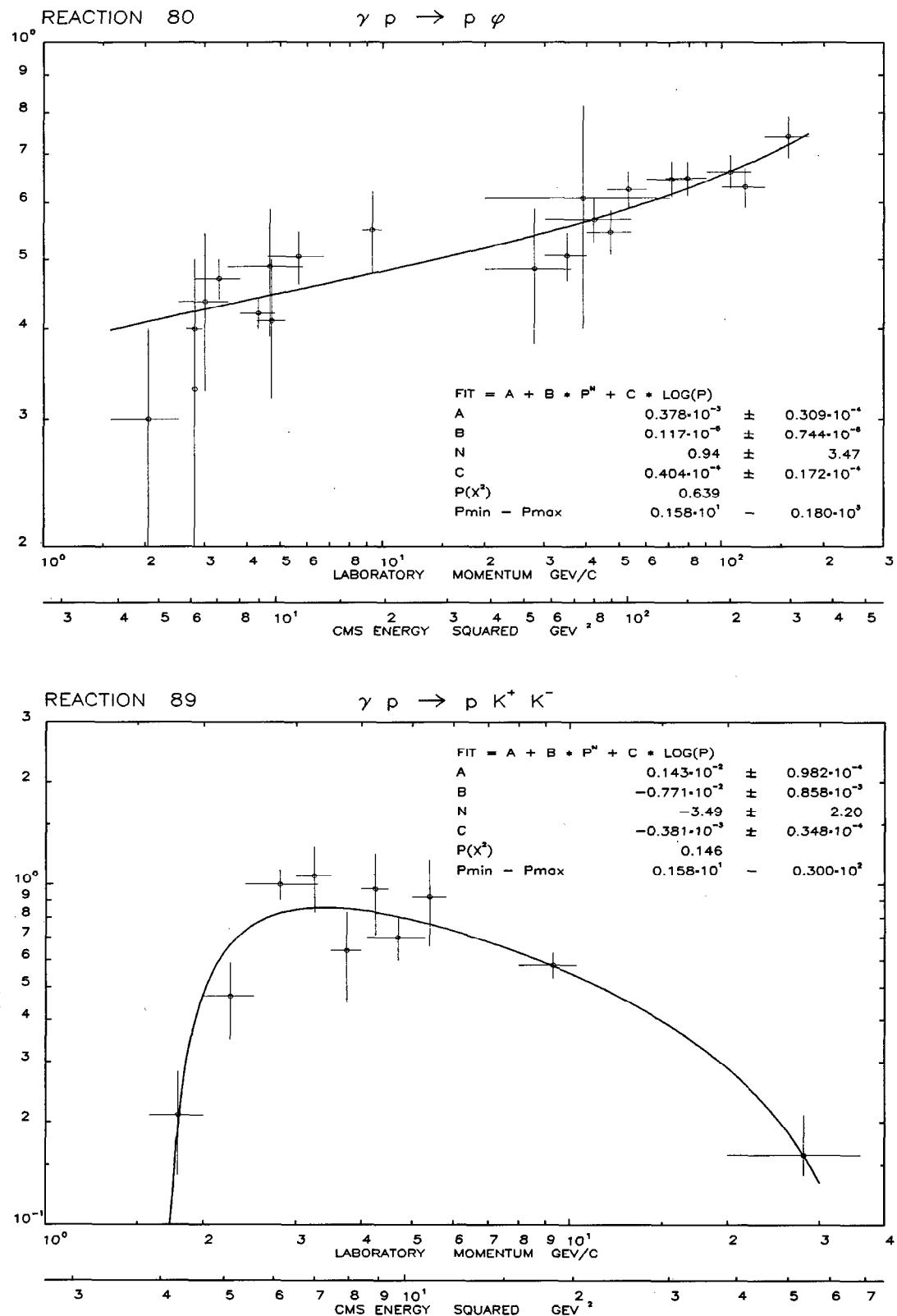
REACTION 75



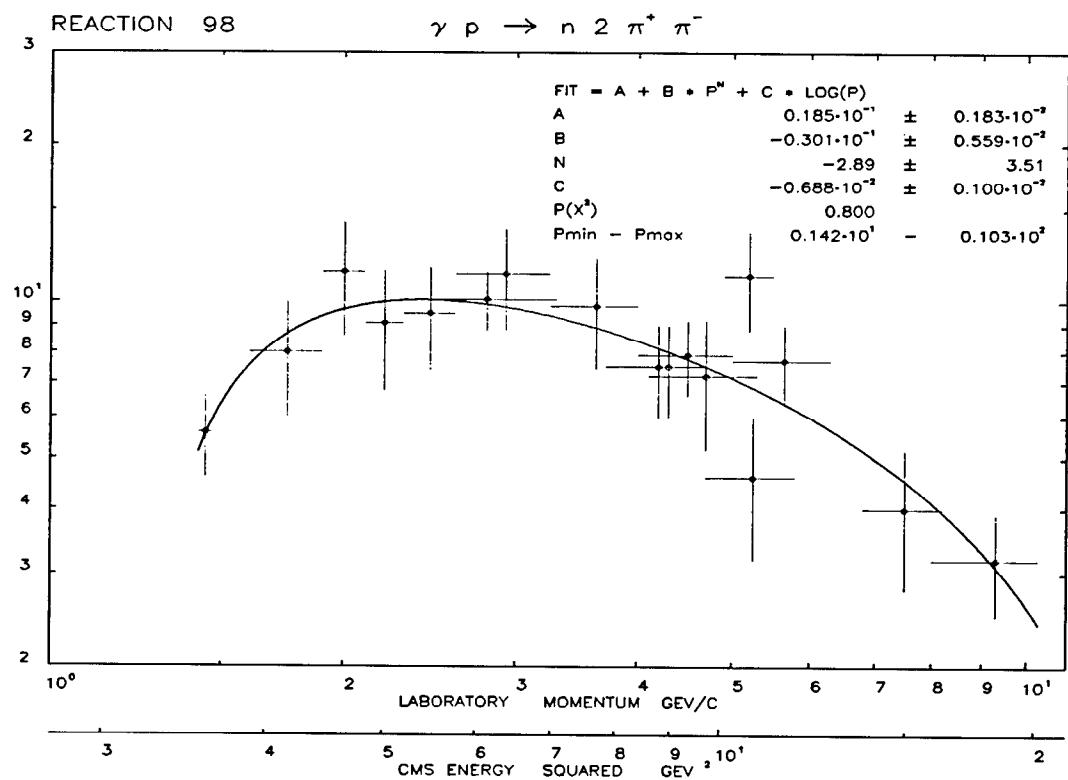
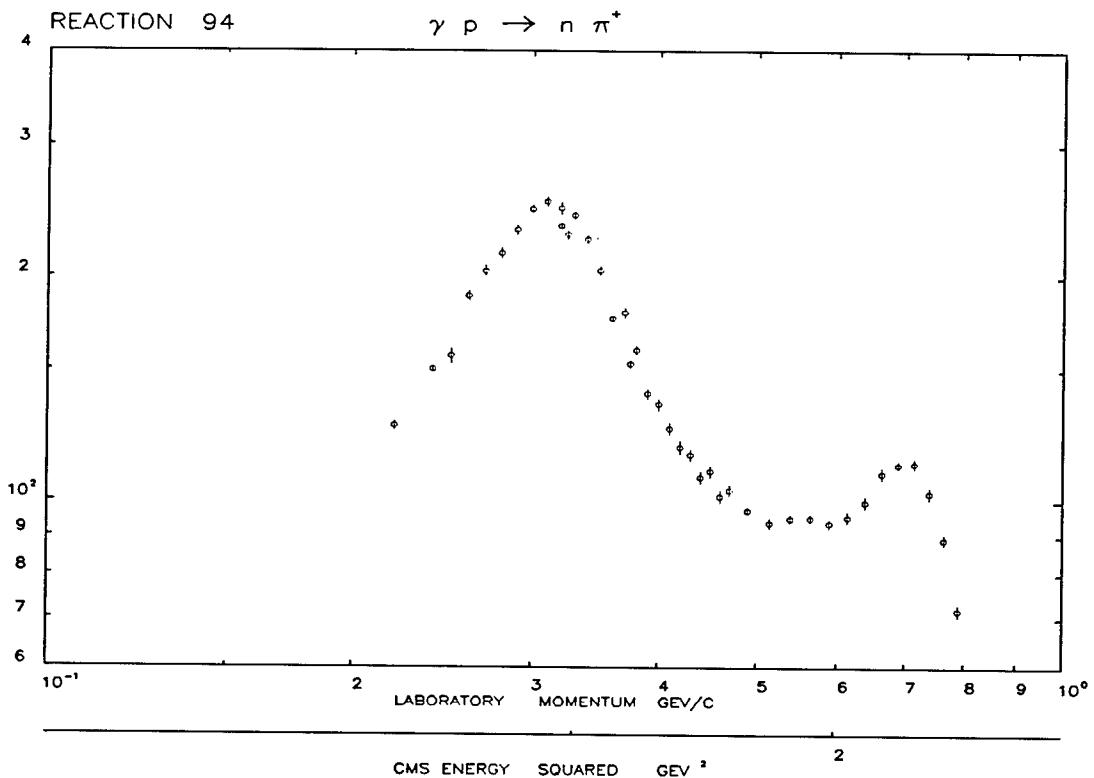
REACTION 77



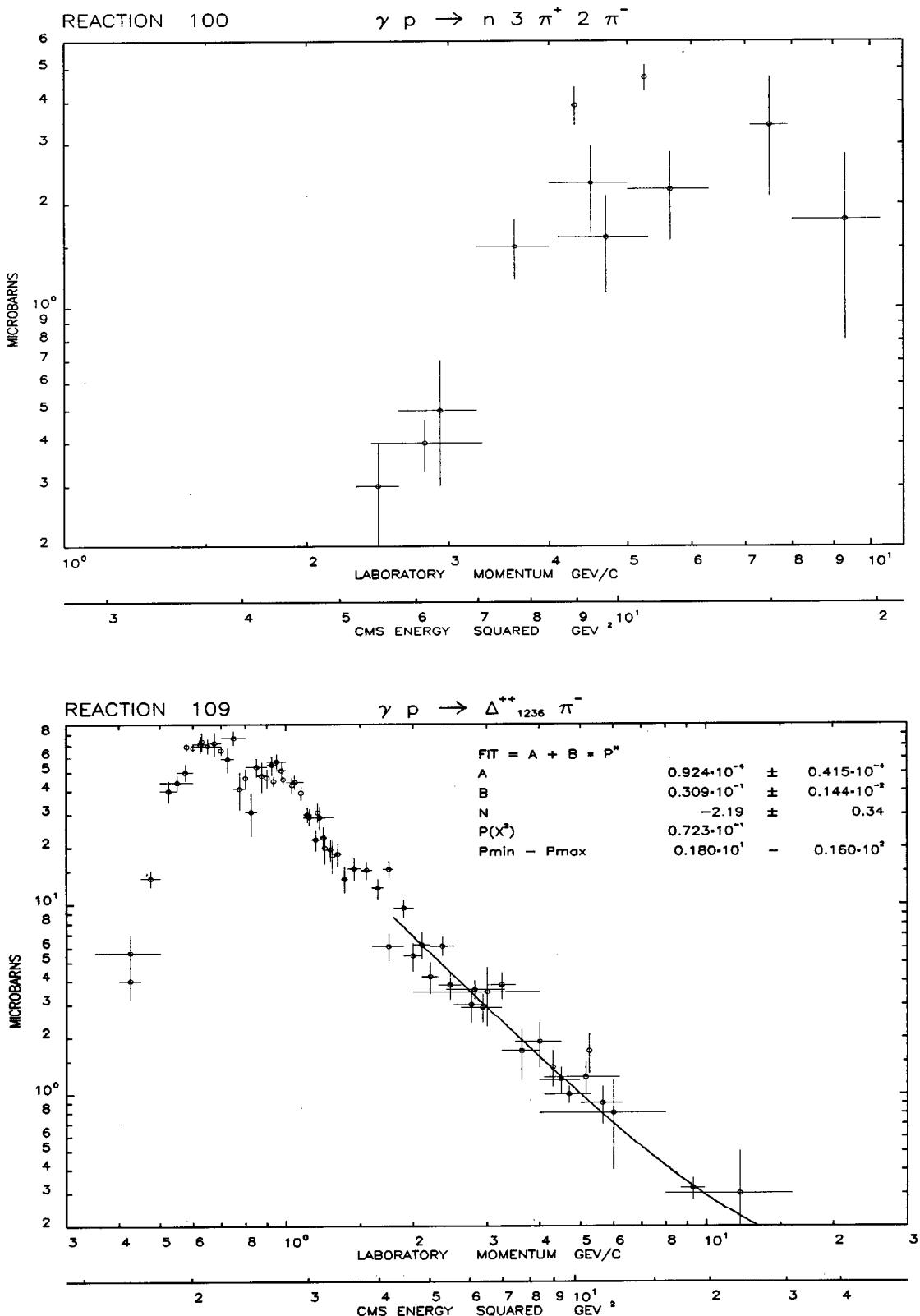
### IX.3 $\gamma$ : Plots



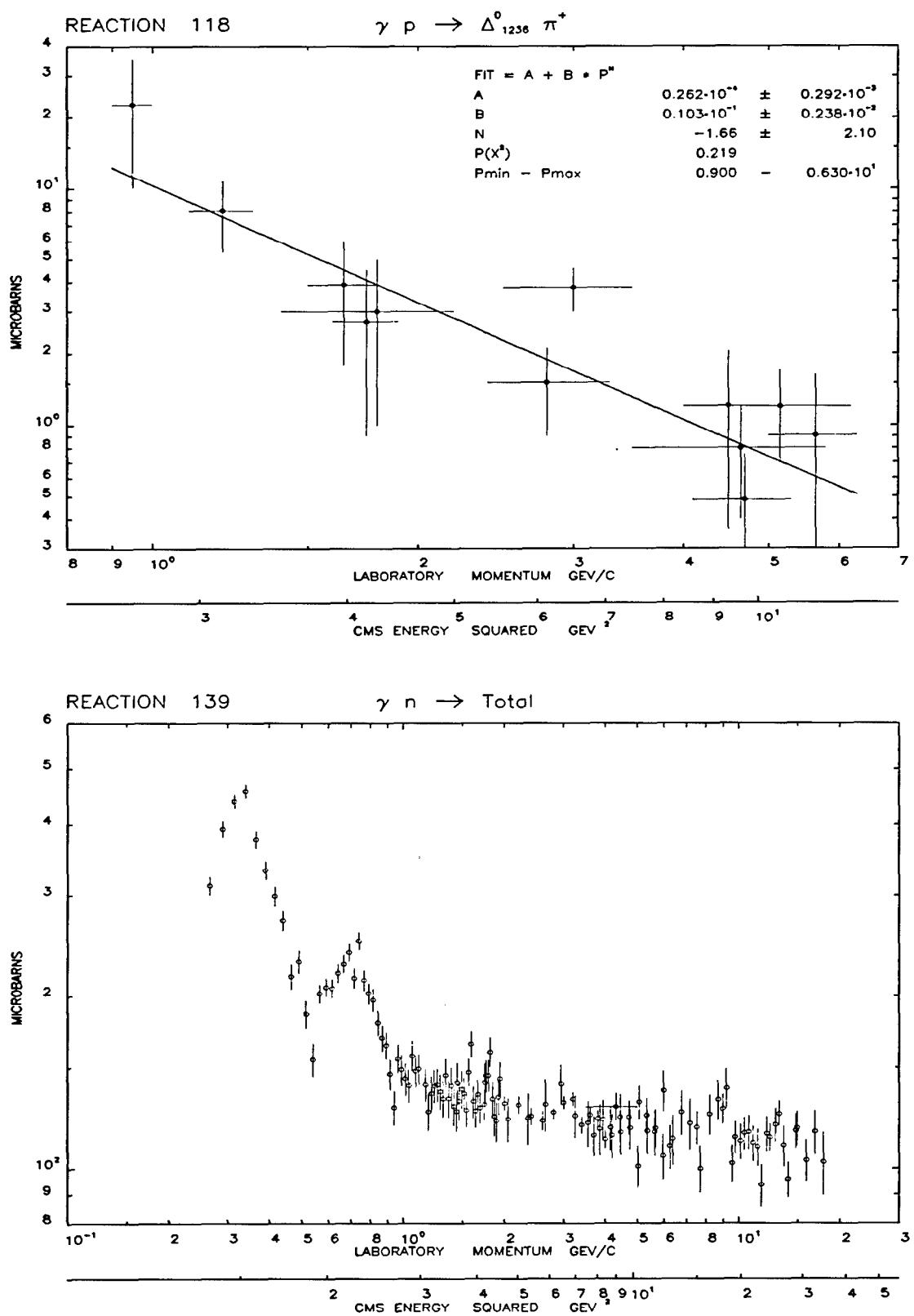
### IX.3 $\gamma$ : Plots



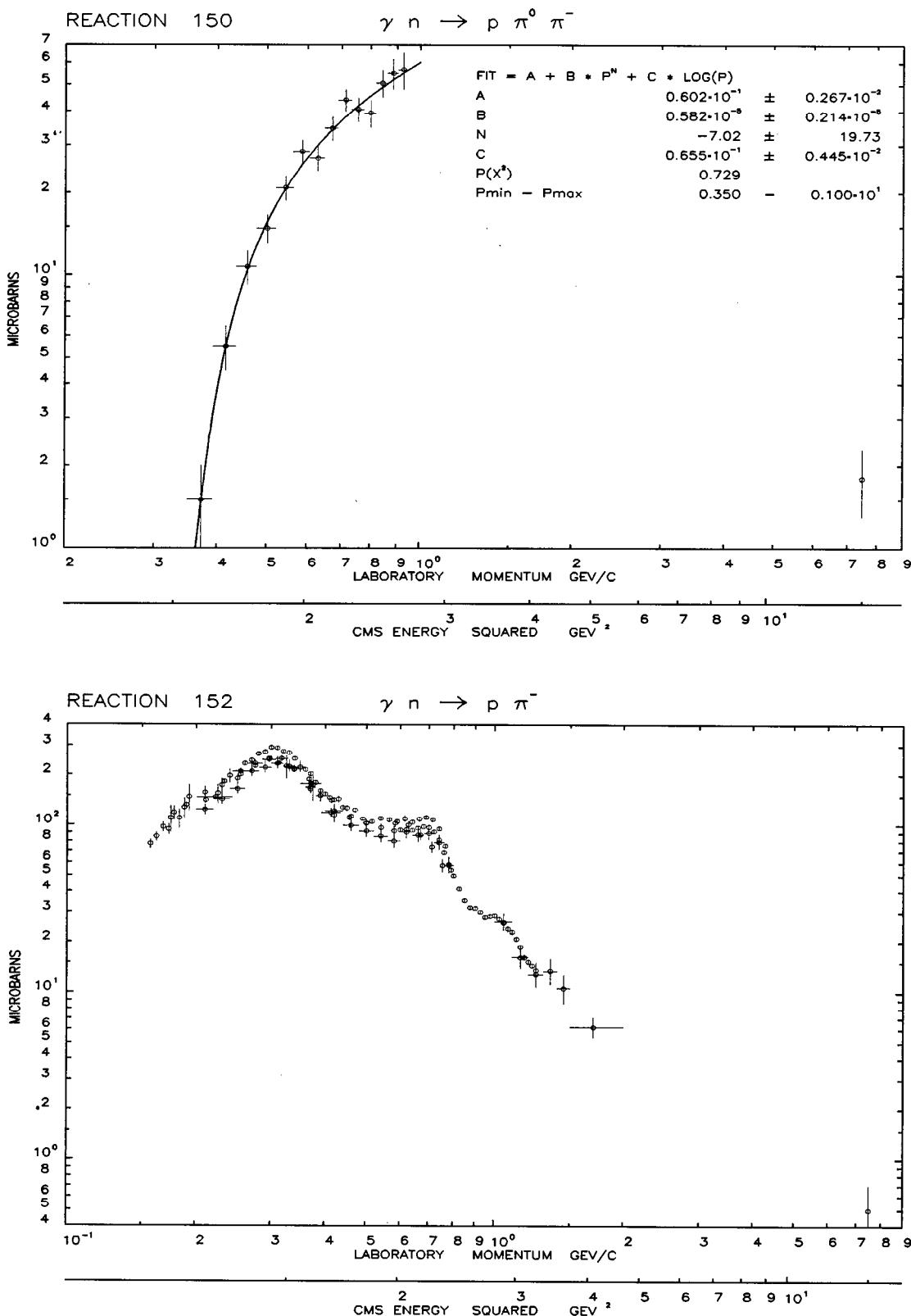
### IX.3 $\gamma$ : Plots



### IX.3 $\gamma$ : Plots



### IX.3 $\gamma$ : Plots



### IX.3 $\gamma$ : Plots

