

Curriculum Vitae et Studiorum

name : **Stefano Boccaletti**

birth date : 21 October 1966

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Education:

1985/91

Degree studies in Physics, Florence University

8 June 1992

Degree in Physics with votation 110/110 and Laude.

Dissertation: "Theory of spatio temporal complexity in nonlinear optics"

Supervisor: Prof. F.T. Arecchi

1992/95

PhD course in Physics : Florence University

21 October 1996

PhD in Physics.

Dissertation: "Pattern formation, selection and competition in extended media".

Supervisor: Prof. F.T. Arecchi

1992/1997

Research activity at the National Institute of Optics (Florence, Italy)

January 1998 - September 1998

Assistant Professor at the University of Navarra (Pamplona, Spain)

October 1998

Winner of the "Marie Curie" EU Fellowship n. ERBFMBICT983466. Title:

"Control and synchronization of spatiotemporal chaos in fluids".

October 1998 - present

Visiting Associate Professor at the University of Navarra (Pamplona, Spain)

March 2001 – present

Full Researcher at the National Institute of Applied Optics, Florence (ITALY)

Dissertations

MD thesis: "Theory of spatio temporal complexity in nonlinear optics"

Supervisor: Prof. F.T. Arecchi

PhD thesis : "Pattern formation, selection and competition in extended media"

Supervisor: Prof. F.T. Arecchi

Research and Teaching Experience

Dr. Stefano Boccaletti received the Master Degree in Physics *summa cum laude* at the University of Florence in June 1992 presenting a research thesis regarding the study of complexity in nonlinear optics.

Subsequent researches on morphogenesis in extended media was completed as a PhD thesis, which was awarded in 1995.

This research activity has been developed, both theoretically and experimentally, at the National Institute of Optics, Florence, Italy.

His major research lines regarded the theoretical modeling of pattern formation and competition in nonlinear active and passive optics, in excitable media, the study of adaptive strategies for chaos recognition, control and synchronization and the theoretical discussion of quantum classical correspondence for classically chaotic systems.

He has coauthored the first experimental evidence of bulk-boundary transition in pattern formation in nonlinear active optics, and the first experimental evidence of domain coexistence in two-dimensional pattern formation in passive optics.

He has also introduced a new adaptive technique for chaos recognition and control, which has been successfully applied for chaos targeting, filtering noise from chaotic data sets, and chaos synchronization, both theoretically and experimentally.

The control algorithm has been extended to infinite dimensional systems (delayed dynamical systems) for the control of defects and space-like structures in amplitude turbulent regimes, and recently to space extended systems for the control and the synchronization of turbulent states.

Boccaletti coauthored much research on pattern formation in excitable media, explaining the transition to fibrillated states of the cardiac tissue, and, most recently, introducing a new indicator for the quantum-classical correspondence in classically chaotic systems.

From 1998, Boccaletti has also studied experimental control and synchronization of chaos in fluid dynamics, with reference to a Bénard-Marangoni convective flow, as well as application of control of chaos for communication.

Boccaletti has intensively studied synchronization phenomena in coupled or forced chaotic dynamics, and coauthored the first evidence of synchronization of structurally non equivalent systems. He also discovered the main features induced by asymmetric coupling in the settings of synchronized motions of coupled extended systems.

Boccaletti has taught at the University of Navarra both at undergraduate ("Applied Mathematics" for the biology career and for the chemistry career), and graduate level (giving PhD courses on "Signal Analysis and Processing", "Instabilities and Space-

Time Chaos in Nonlinear Optics” and “Control of Chaotic Systems” within the PhD career on Physics at the University of Navarra). Furthermore, he has been invited by the University of Zaragoza (Spain) and by the University of Florence (Italy) to teach the PhD course on “Control of Chaos”.

Collaborations, congresses and schools

During the course of his research career, the candidate has established and maintained relationships with many Universities internationally, such as the University of Buenos Aires (Argentina), the University of Navarra (Spain), the University of Potsdam (Germany), the University of Maryland at College Park (USA), the Arizona State University at Phoenix (USA), the Georgia Institute for Technology at Atlanta (USA), the Weizmann Institute of Science at Rehovot (Israel), the University of West Virginia at Morgantown (USA), the University of Princeton (USA), the Institute Non Lineaire de Nice (France), the University of Santiago de Compostela (Spain), the University of Potsdam (Germany), the University Complutense of Madrid (Spain), the University of Zaragoza (Spain), the University of Lisboa (Portugal), the National Institute of Optics (Italy), in some cases giving lectures and seminars, in others undertaking joint research projects or research exchanges.

The joint researches and projects have generated two European networks (size about 1,5 Million Euros, completely funded by EU), one Italian National 3 year research project (size around 2 Million Euros), one Fullbright Project for the Interchange between Spain and US (size about 20,000 US\$), several integrated actions Italy-Spain (size about 20,000 US\$), and an integrated action Italy-Russia (size about 10,000 US\$).

He has participated in 76 International Conferences and Schools, presenting his work, and lecturing. He has organized the Third EuroConference on Control of Chaos (held at Montecatini Terme, Italy, May 16-18, 1997). He organized the International Summer School on “Characterization, Control and Synchronization of Space Time Chaos” held in Pamplona, June 19-23, 2000, the 6th Experimental Chaos Conference held in Potsdam, July 22-26, 2001, the International Workshop and Seminar on Control, Communication, and Synchronization in Chaotic Dynamical Systems, held in Dresden, October 14 - November 23, 2001. He organized the 7th edition of the Experimental Chaos Conference hold in San Diego, California, August 25-29, 2002, and of the International School on Fundamentals and Perspectives of Nonlinear Dynamics, hold in Brazilia, July 1-5, 2002. He is organizer of the 8th edition of the Experimental Chaos Conference that will be held in Florence, Italy, June 14-17, 2004. Major invited participations include the School on Spatiotemopral Chaos (Brazil november 1997), the school on chaos in dynamical systems (Trieste, Italy 1998), the school on turbulence (Israel 1999), the Minisymposia on Control of Chaos, Synchronization of chaos and Complex Dynamics in Neuroscience at the 5th, 6th and 7th SIAM Conference on Application of Dynamical Systems.

Services to the International Community

1. Referee of: Nature, Physical Review Letters, Physical Review A, Physical Review E, Physica D, Physics Letters A, Chaos, Optics Communications, Journal of Nonlinear Science, International Journal of Bifurcation and Chaos, Il Nuovo Cimento, IEEE Transactions on Circuits and Systems.
2. Member of the Advisory Board of the AIP Journal CHAOS since January the 1st, 2002.
3. Member of the Editorial Board of the Journal "Dynamical Systems: Chaos and Complexity Letters".
4. Associate Editor of the "Journal of Mathematical Biosciences and Engineering" (American Institute of Mathematical Sciences).
5. Organizer of the Third EuroConference on Control of Chaos (Montecatini Terme, 16-18 May 1997).
6. Guest Editor of the special issue of Int. J. Bif. and Chaos, containing the proceedings of the Third EuroConference on Control of Chaos (October 1998).
7. Organizer of the International Summer School on "Characterization, Control and Synchronization of Space Time Chaos" held in Pamplona, June 19-23, 2000, of the 6th Experimental Chaos Conference held in Potsdam, July 22-26, 2001, and of the International Workshop and Seminar on Control, Communication, and Synchronization in Chaotic Dynamical Systems, held in Dresden, October 14 - November 23, 2001.
8. Guest Editor of the special issue of Int. J. of Bifurcation and Chaos containing the proceedings of the School in Pamplona (October-November 2001).
9. Editor of the Book "Space-Time Chaos: characterization, control and synchronization", World Scientific 2001.
10. Organizer of the 7th Experimental Chaos Conference hold in San Diego, California, August 25-29, 2002.
11. Editor of the American Institute of Physics Proceeding Books for the 6th and 7th Experimental Chaos Conferences (AIP Conference Proceedings n. 622 and 676).
12. Editor of the Focus Issue (Vol. 13 n. 1, march 2003) of Chaos entitled "Control and Synchronization in Chaotic Dynamical Systems".
13. Elected member of the Florence City Council from 1995 to 1999.

List of Publications in International Journals

Year 1992

- 1) **S. Boccaletti**, Graduation thesis in Physics: "Theory of spatiotemporal complexity in nonlinear optics", Supervisor: Prof. F.T. Arecchi.
- 2) F.T. Arecchi, **S. Boccaletti**, G. Giacomelli, G.P. Puccioni, P.L. Ramazza and S. Residori, " Patterns, space-time chaos and topological defects in nonlinear optics", *Physica D* **61**, 25 (1992).
- 3) F.T. Arecchi, **S. Boccaletti**, G.B. Mindlin and C. Perez Garcia, "Periodic and Chaotic Alternation in Systems with Imperfect O(2) Symmetry", *Phys. Rev. Lett.* **69**, 3723 (1992).
- 4) F.T. Arecchi, **S. Boccaletti**, G. Giacomelli, G.P. Puccioni, P.L. Ramazza and S. Residori, in " New Trends in Nonlinear Dynamics: Nonvariational Aspects", edited by C. Perez Garcia, North-Holland 1992, pag. 25.

Year 1993

- 5) F.T. Arecchi, **S. Boccaletti**, P.L. Ramazza and S. Residori, "Transition from Boundary- to Bulk-Controlled Regimes in Optical Pattern Formation", *Phys. Rev. Lett.* **70**, 2277 (1993).

Year 1994

- 6) F.T. Arecchi, **S. Boccaletti**, M. Ciofini and R. Meucci, "Pattern competition in a high-power CO₂ laser due to optogalvanic modulation of the pump profile", *Opt. Eng.* **33**, 97 (1994).
- 7) F.T. Arecchi, G. Basti, **S. Boccaletti** and A.L. Perrone, "Adaptive Recognition of a Chaotic Dynamics", *Europhys. Lett.* **26**, 327 (1994).
- 8) A. Giaquinta, **S. Boccaletti**, L. Tellini and F.T. Arecchi, "Modeling Excitable Media by a One Variable Cellular Automaton: Application to the Cardiac Case", *Chaos* **4**, 557 (1994).
- 9) F.T. Arecchi, G. Giacomelli, P.L. Ramazza, S. Residori, **S. Boccaletti** and G.P. Puccioni, "Periodic Alternation, Chaotic Itinerancy and Space-Time Chaos in Optics: Patterns and Topological Defects", Chapter 16 in *Nonlinear Optics and Optical Physics*, ed. by I-C. Khoo, J.F. Lam and F. Simoni, World Scientific Publishing Co., Singapore 1994, p. 462.
- 10) F.T. Arecchi, **S. Boccaletti**, G. P. Puccioni, P.L. Ramazza and S. Residori, "Pattern Formation and Competition in Photorefractive Oscillators", *Chaos* **4**, 491 (1994).

11) F.T. Arecchi, **S. Boccaletti**, G. Giacomelli, G.P. Puccioni, P.L. Ramazza and S. Residori, "Boundary dominated vs. bulk dominated regime in optical space-time complexity", *Int.J. of Bifurcation and Chaos* **4**, 1281 (1994).

12) F.T. Arecchi, G. Basti, **S. Boccaletti** and A.L. Perrone, "Adaptive Recognition of Chaos", *Int.J. of Bifurcation and Chaos* **4**, 1275 (1994).

13) A.L. Perrone, **S. Boccaletti**, G. Basti and F.T. Arecchi, "A mutually recursive method to detect and remove noise in chaotic dynamics", *Proceedings of the SPIE, The International Society for Optical Engineering*, vol. 2242, 1994, p.130.

Year 1995

14) **S. Boccaletti**, PhD Thesis in Physics: "Pattern formation and recognition in space extended systems", Supervisor: Prof. F.T. Arecchi.

15) **S. Boccaletti** and F.T. Arecchi, "Adaptive Control of Chaos" , *Europhys. Lett.* **31**, 127 (1995).

16) F.T. Arecchi, **S. Boccaletti**, G. Giacomelli, P.L. Ramazza and S. Residori, "Pattern and Vortex Dynamics in Photorefractive Oscillators" Chapter 7 in *Self-Organization in Optical Systems and Applications in Information Technology* ed. by M.A. Vorontsov and W.B. Miller (Springer Verlag Berlin Heidelberg 1995) p.161.

17) **S. Boccaletti**, G.P. Puccioni, P.L. Ramazza, S. Residori and F.T. Arecchi, "Diffraction and diffusion in optical morphogenesis", *Conference Proceedings, National Workshop on Nonlinear Dynamics*, Vol. 48, Italian Phys. Soc., Bologna, Italy, 1995, p. 153.

18) **S. Boccaletti**, A. Giaquinta and F.T. Arecchi, "Cellular automata and cardiac dynamics: role of superexcitability", *Conference Proceedings, National Workshop on Nonlinear Dynamics*, Vol. 48, Italian Phys. Soc., Bologna, Italy, 1995, p. 145.

Year 1996

19) A. Farini, **S. Boccaletti** and F.T. Arecchi "Quantum Classical comparison in Chaotic Systems", *Phys. Rev.* **E53**, 4447 (1996).

20) S. Residori, P.L. Ramazza, E. Pampaloni, **S. Boccaletti** and F.T. Arecchi, "Domain coexistence in two dimensional optical patterns", *Phys. Rev. Lett.* **76**, 1063 (1996).

21) **S. Boccaletti** and F.T. Arecchi, "Adaptive Recognition and Control of Chaos", *Physica* **D96**, 9 (1996).

22) A. Giaquinta, **S. Boccaletti** and F.T. Arecchi, "Superexcitability induced spiral breakup in Excitable Media", *Int. J. of Bifurcation and Chaos* **6**, 1753 (1996).

23) F.T. Arecchi, **S. Boccaletti**, E. Pampaloni, P.L. Ramazza and S. Residori, "Competition and coexistence of two-dimensional optical patterns", *Physica Scripta* **T67**, 7 (1996).

24) F.T. Arecchi, **S. Boccaletti**, E. Pampaloni, P.L. Ramazza and S. Residori, "Optical morphogenesis: dynamics of patterns in passive optical systems", Chapter 26 in "Trends in Optics, Research, Developments and Applications" ed. by A. Consortini (Academic Press, San Diego, 1996), p. 473.

25) **S. Boccaletti** and F.T. Arecchi, "Adaptive Control of Chaotic and Hyperchaotic Dynamics", *Journal of Technical Physics* **37**, 285 (1996).

26) P.L. Ramazza, **S. Boccaletti**, A. Giaquinta, E. Pampaloni, S. Soria and F.T. Arecchi, "Optical Pattern Selection by Lateral Wavefront Shift", *Phys. Rev. A* **54**, 3472 (1996).

27) F.T. Arecchi, **S. Boccaletti**, E. Pampaloni, P.L. Ramazza and S. Residori, "Scale segregation via formation of domains in a nonlinear optical system", Proceedings of the 3rd Experimental Chaos Conference, ed. by R.G. Harrison, W. Lu, W. Ditto, L. Pecora, M. Spano and S. Vohra, World Scientific Publishing, Singapore, 1996, p. 3.

Year 1997

28) F. Plaza, M.G. Velarde, F.T. Arecchi, **S. Boccaletti**, M. Ciofini and R. Meucci, "Excitability following an Avalanche-Collapse process", *Europhys. Lett.* **38**, 85 (1997).

29) A. Labate, M. Ciofini, **S. Boccaletti**, G.B. Mindlin, R. Meucci and F.T. Arecchi, "Pattern Formation and Competition in a High Fresnel Number CO₂ Laser", *Phys. Rev. A* **56**, 2237 (1997).

30) P.L. Ramazza, **S. Boccaletti** and F.T. Arecchi, "Transport induced patterns in an optical system with focussing nonlinearity", *Opt. Comm.* **136**, 267 (1997).

31) **S. Boccaletti**, A. Farini and F.T. Arecchi, "Adaptive Synchronization of Chaos for Secure Communication", *Phys. Rev. E* **55**, 4979 (1997).

32) **S. Boccaletti**, A. Giaquinta and F.T. Arecchi, "Adaptive Recognition and Filtering of Noise using Wavelets", *Phys. Rev. E* **55**, 5393 (1997) .

33) **S. Boccaletti**, A. Farini, E.J. Kostelich and F.T. Arecchi, "Adaptive Targeting of Chaos", *Phys. Rev. E* **55**, R4845 (1997).

34) **S. Boccaletti**, A. Farini and F.T. Arecchi, "Adaptive Strategies for Recognition, Control and Synchronization of Chaos", *Chaos, Solitons and Fractals* **8**, 1431 (1997).

35) F.T. Arecchi and **S. Boccaletti**, "Adaptive Strategies for Chaos Recognition, Control, Synchronization, Targeting and Filtering", *Chaos* **7**, 621 (1997).

36) **S. Boccaletti**, D. Maza, H. Mancini, R. Genesio and F.T. Arecchi, "Control of Defects and Space-Like Structures in Delayed Dynamical Systems", *Phys. Rev. Lett.* **79**, 5246 (1997).

Year 1998

37) L. Narici, **S. Boccaletti**, A. Giaquinta and F.T. Arecchi, "Discrimination of deterministic dynamics in the spontaneous activity of the human brain cortex", *Europhys. Lett.* **42**, 247 (1998).

38) F.S. de San Roman, **S. Boccaletti**, D. Maza and H. Mancini, "Weak Synchronization of Chaotic Coupled Map Lattices", *Phys. Rev. Lett.* **81**, 3639 (1998).

39) F.T. Arecchi, **S. Boccaletti**, M. Ciofini, C. Grebogi and R. Meucci, "The control of chaos: theoretical schemes and experimental realizations", *Int. J. of Bifurcation and Chaos* **8**, 1643 (1998).

40) D. Maza, H. Mancini, **S. Boccaletti**, R. Genesio and F.T. Arecchi, "Control of Amplitude Turbulence in Delayed Dynamical Systems", *Int. J. of Bifurcation and Chaos* **8**, 1843 (1998).

Year 1999

41) P.L. Ramazza, **S. Boccaletti**, A. Giaquinta, E. Pampaloni, S. Soria and F.T. Arecchi, "Pattern Formation in a Nonlinear Optical System: the Effects of Nonlocality", *Chaos, Solitons and Fractals* **10**, 693 (1999).

42) F.T. Arecchi, **S. Boccaletti** and P.L. Ramazza, "Pattern Formation and Competition in Nonlinear Optics", *Physics Report* **318**, 1 (1999).

43) A. Giaquinta, **S. Boccaletti**, M. Boccaletti and F.T. Arecchi, "Investigating the fractal properties of geological fault systems: The Main Ethiopian Rift case", *Geophysics Review Letters* **26**, 1633 (1999).

44) **S. Boccaletti**, J. Bragard and F.T. Arecchi, "Controlling and Synchronizing Space Time Chaos", *Phys. Rev.* **E59**, 6574 (1999).

45) P.L. Ramazza, **S. Boccaletti**, S. Ducci and F.T. Arecchi, "Transport Induced pattern selection in a nonlinear optical systems, *J. of Nonlinear Optical Phys. and Materials* **8**, 1 (1999).

46) M. Ciofini, A. Labate, R. Meucci, **S. Boccaletti** and F.T. Arecchi, "Takens-Bogdanov bifurcation in optical patterns", in *Proceedings of the 4th Experimental Chaos Conference* (Edited by M. Ding, W. Ditto, L. Pecora, M. Spano and S. Vohra, Word Scientific, 1999), page 91.

47) **S. Boccaletti**, J. Bragard, F.T. Arecchi and H. Mancini, "Synchronization in Nonidentical Extended Systems", *Phys. Rev. Lett.* **83**, 536 (1999).

Year 2000

- 48) **S. Boccaletti**, C. Grebogi, Y.-C. Lai, H. Mancini and D. Maza, “The control of chaos: theory and applications”, Physics Report **329**, 103 (2000).
- 49) J. Bragard, F.T. Arecchi and **S. Boccaletti**, “Characterization of Synchronized Spatiotemporal States in Coupled Non Identical Complex Ginzburg-Landau Equations”, International Journal of Bifurcation and Chaos **10**, 2381 (2000).
- 50) D.Maza, **S. Boccaletti** and H. Mancini, “Phase Clustering and Collective Behaviors in Globally Coupled Map Lattices due to Mean Field Effects”, International Journal of Bifurcation and Chaos **10**, 829 (2000).
- 51) **S. Boccaletti**, D. L. Valladares, J. Kurths, D. Maza and H. Mancini, “Synchronization of Chaotic Structurally Nonequivalent Systems”, Phys. Rev. **E61**, 3712 (2000).
- 52) M.L. Ramon, R. Meucci, E. Allaria and **S. Boccaletti**, “Pattern dynamics in an annular CO₂ laser”, European Physical Journal **D12**, 329 (2000).
- 53) D. Maza, A. Vallone, H. Mancini and **S. Boccaletti**, “Experimental Phase Synchronization of Chaotic Convective Flows”, Phys. Rev. Lett. **85**, 5567 (2000).
- 54) J. Bragard, P.L. Ramazza, F. T. Arecchi, **S. Boccaletti** and L. Kramer, “Domain segregation in a two-dimensional system in the presence of drift”, Phys. Rev. **E61**, R6045 (2000).
- 55) **S. Boccaletti** and D.L. Valladares, “Characterization of Intermittent Lag Synchronization”, Phys. Rev. **E62**, 7497 (2000).
- 56) P.L. Ramazza, S. Ducci, **S. Boccaletti** and F.T. Arecchi, “Localized versus delocalized patterns in a nonlinear optical interferometer”, J. Opt. B: Quantum Semiclass. Opt. **2**, 399 (2000).
- 57) F.T. Arecchi and **S. Boccaletti**, “Adaptive strategies for recognition and control of chaos”, in *Chaos and Noise in Biology and Medicine*, ed. by M. Barbi and S. Chillemi, Word Scientific Series on Biophysics and biocybernetics, page 99 (2000).
- 58) J. Bragard and **S. Boccaletti**, “Integral behavior for localized synchronization in nonidentical extended systems”, Phys. Rev. **E62**, 6346 (2000).
- 59) F.T. Arecchi, **S. Boccaletti**, S. Ducci, E. Pampaloni, P.L. Ramazza and S. Residori, “The liquid crystal light valve with optical feedback: a case study in pattern formation”, J. Of Nonlin. Opt. Physics and Materials **9**, 183 (2000).

60) S. Madruga, **S. Boccaletti** and M.A. Matías, “Delayed dynamical systems with variable delay”, in *Space Time Chaos: Characterization, Control and Synchronization*, ed. by S. Boccaletti, J. Burguete, W. González-Viñas, H.L. Mancini and D.L. Valladares (World Scientific) p.113.

61) D. Maza, A. Vallone, H.L. Mancini and **S. Boccaletti**, “Phase synchronization in chaotic convection”, in *Space Time Chaos: Characterization, Control and Synchronization*, ed. by S. Boccaletti, J. Burguete, W. González-Viñas, H.L. Mancini and D.L. Valladares (World Scientific) p.211.

62) I. P. Mariño, D.L. Valladares, C. Grebogi, **S. Boccaletti** and E. Rosa Jr., “Communication with chaos: reconstructing information-carrying signals”, in *Space Time Chaos: Characterization, Control and Synchronization*, ed. by S. Boccaletti, J. Burguete, W. González-Viñas, H.L. Mancini and D.L. Valladares (World Scientific) p.273.

Year 2001

63) **S. Boccaletti**, Louis M. Pecora and A. Pelaez, “Unifying framework for synchronization of coupled dynamical systems”, *Phys. Rev.* **E63**, 066219 (2001).

64) S. Casado, W. González-Viñas, H.L. Mancini and **S. Boccaletti**, “Topological defects after a quench in a Bénard-Marangoni convection system”, *Phys. Rev.* **E63**, 057301 (2001).

65) M.L.Ramon, R. Meucci, E. Allaria and **S. Boccaletti**, “Pattern Formation and Dynamics in an Annular CO₂ Laser”, *Int. J. of Bifurcation and Chaos*, **11**, 2759 (2001).

66) S.Madruga, **S. Boccaletti** and M.A.Matías, “Effect of a variable delay in delayed dynamical systems”, *Int. J. of Bifurcation and Chaos*, **11**, 2875 (2001).

67) J.Bragard, **S. Boccaletti** and F.T.Arecchi, “Control and synchronization of space extended dynamical systems”, *Int. J. of Bifurcation and Chaos*, **11**, 2715 (2001).

68) D. L. Valladares, **S. Boccaletti**, C. Grebogi and H. Mancini, “Signal Dropout Reconstruction in Communicating with Chaos”, *Int. J. of Bifurcation and Chaos*, **11**, 2621 (2001).

69) W. González-Viñas, S. Casado, J. Burguete, H.L. Mancini and **S. Boccaletti**, “Defect dynamics during a quench in a Benard-Marangoni convection system”, *Int. J. of Bifurcation and Chaos*, **11**, 2887 (2001).

70) D. L. Valladares, M.F. Carusela and **S. Boccaletti**, “Intermittent lag synchronization in a pair of coupled chaotic oscillators”, *Int. J. of Bifurcation and Chaos*, **11**, 2699 (2001).

Year 2002

- 71) P.L. Ramazza, E. Benkler, U. Bortolozzo, **S. Boccaletti**, S. Ducci and F.T. Arecchi, "Tailoring the profile and interactions of optical localized structures", *Phys. Rev.* **E65**, 066204 (2002).
- 72) **S. Boccaletti**, D.L. Valladares, Louis M. Pecora, Hite P. Geffert and T. Carroll, "Reconstructing embedding spaces of coupled dynamical systems from multivariate data", *Phys. Rev.* **E65**, 035204 (2002).
- 73) D.L. Valladares, **S. Boccaletti**, F. Feudel and J. Kurths, "Collective phase locked states in a chain of coupled chaotic oscillators", *Phys. Rev.* **E65**, 055208 (2002).
- 74) **S. Boccaletti**, J. Kurths, G. Osipov, D.L. Valladares and C. S. Zhou, "The synchronization of chaotic systems", *Physics Reports* **366**, 1 (2002).
- 75) **S. Boccaletti**, E. Allaria, R. Meucci and F.T. Arecchi, "Experimental characterization of the transition to phase synchronization of chaotic CO₂ laser systems", *Phys. Rev. Lett.* **89**, 194101 (2002).
- 76) P.L. Ramazza, E. Benkler, **S. Boccaletti**, U. Bortolozzo, S. Ducci and F.T. Arecchi, "Localized structures in nonlinear optics: spatial features and interactions", in *Experimental Chaos: 6th Experimental Chaos Conference*, ed. By S. Boccaletti et al. (AIP, 2002), p. 299.
- 77) I.P. Marino, E. Allaria, R. Meucci, **S. Boccaletti** and F.T. Arecchi, "Information encoding in a chaotic laser", proceeding del 19th Congress of the International Commission for Optics, Firenze Italy, 25-30 August 2002.

Year 2003

- 78) R. Meucci, C.S. Zhou, E. Allaria, F.T. Arecchi, **S. Boccaletti** and J. Kurths, "Evidence of Noise Induced Synchronization and Coherence Resonance in Homoclinic Chaos", in proceeding del the 7th Experimental Chaos Conference San Diego, California (USA), 25-29 August 2002, ed. by V. In, L. Kocarev, T.L. Carroll, B.J. Gluckman, S. Boccaletti and J. Kurths (AIP 2003 Conference Proceedings 676), p. 71.
- 79) L. Pecora, **S. Boccaletti**, D.L. Valladares, L. Moniz, H.P. Geffert and T. Carroll, "Multiple Time Series and Attractor Reconstructions", in proceeding del the 7th Experimental Chaos Conference San Diego, California (USA), 25-29 August 2002, ed. by V. In, L. Kocarev, T.L. Carroll, B.J. Gluckman, S. Boccaletti and J. Kurths (AIP 2003 Conference Proceedings 676), p. 339.
- 80) C. S. Zhou, E. Allaria, R. Meucci, F.T. Arecchi, **S. Boccaletti** and J. Kurths, "Noise-enhanced synchronization of homoclinic chaos in a CO₂ laser", *Phys. Rev.* **E 67**, 015205 (2003).
- 81) J. Kurths, **S. Boccaletti**, C. Grebogi and Y.-C. Lai, "Control and synchronization in chaotic dynamical systems", *Chaos* **13**, 126 (2003).

- 82) I. P. Marino, E. Allaria, R. Meucci, **S. Boccaletti** and F.T. Arecchi, "Information encoding in homoclinic chaotic systems", *Chaos* **13**, 286 (2003).
- 83) P.L. Ramazza, **S. Boccaletti**, U. Bortolozzo and F.T. Arecchi, "Control of localized structures in an optical feedback interferometer", *Chaos* **13**, 335 (2003).
- 84) C. S. Zhou, E. Allaria, F.T. Arecchi, **S. Boccaletti**, R. Meucci and J. Kurths, "Constructive effects of noise in homoclinic chaotic systems", *Phys. Rev.* **E67**, 066220 (2003).
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