



THE CITY COLLEGE
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Prof. Herman Z. Cummins
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Biocomplexity Faculty Search Committee, c/o Prof. Rob de Ruyter Steveninck
Indiana University
Biocomplexity Institute - Swain Hall West 117
Bloomington, IN 47405-7105

Dear Prof. de Ruyter Steveninck and Members of the Biocomplexity Faculty Search Committee:

I am writing to recommend Dr. Martin Muschol who is applying for a faculty position in your department. Martin was a student in the Ph.D. program in Physics at the City University of New York. He worked in my research group from July 1987 until August 1992, when he completed his Ph.D.

Martin initially worked on a project in which dynamic light scattering spectroscopy was used to investigate the crystal-melt-interface during directional solidification. He mastered the laser optics and photon correlation techniques as well as the computer interfacing and data analysis procedures which he improved considerably.

Subsequently, Martin worked in our pattern formation project in which we were investigating various aspects of dendritic growth, sidebranching dynamics, and planar-to-cellular interface transitions. This research was primarily performed with computerized videomicroscopy, and Martin was extremely effective at writing software and combining commercially available hardware and software to achieve outstanding precision in digitized image processing. He mainly worked on the problem of determining the anisotropy of crystal-melt interfacial tension. This parameter is crucial for testing modern theories of shape selection, but is extremely difficult to measure accurately. Consequently, experimental verification of the theory (microscopic solvability) had been held back. Martin designed a high-precision apparatus and succeeded in measuring the anisotropy in three systems which provided the basis for a definitive test of the theory.

After leaving New York, Martin joined the research group of Prof. F. Rosenberger at the Center for Microgravity and Materials Research at the University of Alabama, Huntsville. His work on protein crystal growth involved developing considerable new skills in sample preparation and utilization of experimental techniques including photon correlation spectroscopy. His experimental results and interpretation of data were very impressive. Subsequently, he moved to the University of Pennsylvania Neuroscience Department where he applied light scattering techniques to the study of nerve cell dynamics. By now he has mastered a broad range of biophysical problems, and is well equipped to establish an active new program in condensed matter physics and biophysics. Since 2000, he has been a Research Assistant Professor.

Martin is an extremely careful researcher, able to easily master new apparatus and procedures, and to carry out sophisticated analysis using complex computer programs. He is very congenial and thoroughly responsible. His English is excellent. I believe that Martin is well equipped to develop a new research program and to develop into a fine academic. I recommend him to you enthusiastically.

Sincerely,

Herman Z. Cummins
Professor of Physics