



West Virginia University

Eberly College of Arts and Sciences

Biocomplexity Faculty Search  
c/o Ms. Yana Teterina  
Department of Physics  
Indiana University  
Swain West 117  
727 East 3rd Street  
Bloomington, IN 47405-7105

November 16, 2003

Dear Search Committee,

I am writing in support of Dr. Stefano Boccaletti in his application for a faculty position in the Biocomplexity Institute at Indiana University. Dr. Boccaletti studied for his PhD with Professor F. T. Arecchi, who was the Director of the Istituto Nazionale di Ottica in Florence, Italy, for many years. He worked with Prof. Arecchi at INO for a couple of years after finishing up his PhD and then moved to the University of Navarra, Pamplona, Spain, where he was an Assistant Professor in the Department of Physics. He then returned to INO, where he is now a Senior Scientist.

I am mainly familiar with Dr. Boccaletti's work in control theory, in which he developed an adaptive technique that allows stabilization of unstable periodic orbits in chaotic systems. His technique is quite different from standard linear control methods in that the feedback perturbations are not delivered at constant time intervals but rather at intervals dependent on the local dynamics of the system. The method has been applied to stabilize high dimensional states in chaotic systems such as the Mackey-Glass equation as well as in distributed turbulent systems. Dr. Boccaletti has also carried out a number of studies on pattern formation and excitable media, and he developed a new reaction-diffusion system for spiral turbulence. More recently, Dr. Boccaletti has carried out many studies on the synchronization of chaotic systems. In 2002, Dr. Boccaletti was the lead author of a major review of chaos synchronization in *Physics Reports*.

I have met and interacted with Dr. Boccaletti many times in Italy, Spain, Brazil, Germany, and in the U.S. He also visited my laboratory at West Virginia University and presented a colloquium talk in the Department of Physics. He gave a very good talk and interacted very well with the faculty. He is very well versed in physics and mathematics, especially in nonlinear dynamics. He is also very personable and has a wide spectrum of interests -- from singing opera to olive oil production to being elected to the Florence City Council!

I highly recommend Dr. Stefano Boccaletti and hope that you will consider him favorably for a position in the Biocomplexity Institute at Indiana University. I believe he would make an excellent colleague; I would be very happy to have him in my own department. Please contact me if I can be of further assistance.

Sincerely,

Kenneth Showalter  
Professor and C. Eugene Bennett  
Chair in Chemistry

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