



**The Center for Control, Dynamical Systems, and Computation
University of California at Santa Barbara
Winter 2007 Seminar Series
Presents**

Game Dynamics

Karl Sigmund
University of Vienna, Austria

Tuesday, February 13th, 2007 2:00pm-4:00pm ESB 1001

Abstract:

Game dynamics can be viewed as a combination of game theory and ecology, with applications in many other fields. In this talk, the role of heteroclinic attractors (consisting of saddle points and saddle connections) will be highlighted. In usual dynamical systems, such attractors are not robust, but they often occur (in the form of Rock-Paper-Scissors cycles) in strategic interactions. This talk deals with examples, basic results and open problems.

About the Speaker:

Karl Sigmund attended school in the lycée français de Vienne. From 1963 to 1968, he studied at the Institute of Mathematics at the University of Vienna, and obtained his Ph.D. under the supervision of Leopold Schmetterer. He then spent the following postdoc years in Manchester (68-69), the Institut des Hautes Etudes in Bures sur Yvette near Paris (69-70), the Hebrew University in Jerusalem (1970-71), the University of Vienna (1971-72) and the Austrian Academy of Science (1972-73). In 1973 Karl was appointed C3-professor at the University of Göttingen, and in 1974 full professor at the Institute of Mathematics in Vienna. His main scientific interest during these years was in ergodic theory and dynamical systems. From 1977 on, Karl became increasingly interested in different fields of biomathematics, and collaborated with Peter Schuster and Josef Hofbauer on mathematical ecology, chemical kinetics and population genetics, but especially on the new field of evolutionary game dynamics and replicator equations. Together with Martin A. Nowak, Christoph Hauert and Hannelore Brandt, he worked on game dynamical approaches to questions related with the evolution of cooperation in biological and human populations. Since 1984, Karl also worked as a part time scientist at the Institute for Applied Systems Theory (IIASA) in Laxenburg. From 1983 to 1985 he was head of the Institute of Mathematics in Vienna, from 1991 to 2001 managing editor of the Monatshefte für Mathematik, from 1995 to 1997 vice-president and, from 1997 to 2001, president of the Austrian Mathematical Society. In 1996 he became corresponding member and, in 1999, full member of the Austrian Academy of Science. In 2003 Karl became a member of the Leopoldina. During the last decade, Professor Sigmund became increasingly interested in the history of mathematics and in particular, the Vienna Circle: he co-edited the mathematical works of Hans Hahn and Karl Menger and organized in 2001 an exhibition on the exodus of Austrian mathematicians fleeing the Nazis and in 2006 an exhibition on Kurt Gödel. From 2003 to 2005 he was vice-president of the Austrian Science Fund FWF.
