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World's Chaos Theory Scholars Gather at Chapman, July 27-29

17th Annual International Conference of the Society for Chaos Theory in Psychology and Life Sciences Will Include Topics in Art, Anthropology, Literature, Philosophy and More

ORANGE, Calif. Nearly 100 chaos-theory experts from around the world will gather at Chapman University on July 27-29 as the university hosts the 17th Annual International Conference of the Society for Chaos Theory in Psychology and Life Sciences. The aim of the meeting is to provide a venue for scholars from around the world to present and discuss recent developments in nonlinear dynamical systems theory, which includes chaos theory, fractals, complex systems, catastrophes and related topics.

The conference is open to the public registration is available at the door at \$270 for the three-day conference, which includes a banquet. Registration begins at 8 a.m. Friday, July 27 in Beckman Hall on the Chapman campus. More information and online registration may be found at www.societyforchaostheory.org/conf2007.

A number of popular science books have familiarized the public with the term chaos theory over the past two decades, but few non-scientists may understand exactly what it is or why it is important. In a nutshell, says Chapman psychology professor David Pincus, chaos theory holds that seemingly random events may be modeled by using simple equations and that small differences in initial states eventually compound to produce markedly different end states later on in time, a phenomenon known informally as the Butterfly Effect. The name comes from the common anecdote involving a butterfly which flaps its wings in one part of the world and over time may make the difference between rain or sun in another part of the world. A related field, catastrophe theory, studies sudden changes in events not necessarily bad ones, as the word catastrophe might suggest. A common example from psychology is when someone gets increasingly angry and then suddenly feels out of control, Dr. Pincus says. Even the simplest threshold effects such as these are outside of the scope of traditional psychology research methods. The Society for Chaos Theory's conference is the primary international venue for the exploration of such topics in psychology and the life sciences.

The conference may be focused on psychology, but it has a broad interdisciplinary appeal as well, says Dr. Pincus. Presentations typically include topics in anthropology, economics, art, education, literature, mathematics, philosophy and physics, he notes. Because systems research is focused on how complex systems adapt and change over time, research results tend to have broad interdisciplinary relevance one particularly striking example is the ubiquitous finding that many psychological process-structures tend to be branch-like, similar to plants, Internet website connectivity, stop times in traffic jams (familiar to us here in southern California), and other natural phenomena from the hard sciences. Such branchlike structures have been discerned within neurons and neuronal connections, heart rates, mood shifts, individual self-concepts, and the structures underlying interpersonal processes. Rigidity, flexibility and change in these branchlike patterns of connection and growth have been useful in understanding the general

processes that underlie health and wellness.

During its 130-year history as a scientific discipline, says Dr. Pincus, psychology "has maintained a myopic focus on linear models based on the normal bell-shaped curve. However, psychological phenomena rarely are normal, nor do they tend to involve linear change; individuals as a whole are never really average. Rather, individuals and their relationships are unique and complex, and often change in sudden and unpredictable ways over time. Nonlinear dynamics embraces this complexity with its models and methods and offers improved explanations for many phenomena.

Dr. Bruce West, chief scientist of the Mathematical and Information Science Directorate at the U.S. Army Research Office, will present one of the keynote addresses, *The Average Person is Truly Exceptional: Where Medicine Went Wrong*. Dr. Bill McKelvey, professor of strategic organizing and complexity science at UCLA's Anderson School of Management, is the other keynote speaker, on the topic *Why Power Law Phenomena Serve to Integrate Chaos and Complexity Dynamics*.

For further information about the conference and a complete schedule of events, go to www.societyforchaostheory.org/conf2007.