



COLLOQUIUM



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Nonlinear Astrophysics at Fresno State

Abstract

Turbulence has been called “the last great unsolved problem of classical physics.” It may not be the last, but it certainly is unsolved, and it certainly is present in many astrophysical phenomena, such as accretion disks, stellar magnetism, and convection in stars. Turbulence is notorious as a problem that challenged the sharpest minds of 20th century physics and made them dull.

In recent decades, computers have made it possible to examine the dynamics of nonlinear systems. Chaos theory and complexity theory are now burgeoning fields in physics. Self-organized criticality can model long-observed but until now poorly understood phenomena that show power-law distributions, including meteoroid impacts, solar and stellar flares, and flickering in accretion disks. I will present results involving self-organized criticality in astrophysics research done by students here at Fresno State, and at least one result that does not, turning out to have a plain, old, approximately Gaussian distribution.

3:00 p.m. – 4:00 pm Friday, October 16th Virtual
For Zoom Link contact dougs@mail.fresnostate.edu