

The Beams and Applications Seminar Series

Characterization of the Chaotic or Regular Nature of Dynamical Orbits: A New, Fast Method

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Bldg. 401, rm B2100

Friday, July 15, 1:30 pm

Host: Michael Borland (APS/AOD)

A new method of characterization of the regular or chaotic nature of dynamical orbits will be introduced. It takes advantage of both morphological and dynamical properties of orbits, and can be applied to systems of all degrees of freedom. The new technique has been designed to analyze orbits in time-independent, time-dependent and N-body systems. It can provide straightforward information about the transition of orbits from regular to chaotic and vice versa (transient chaos), which can be found in time-dependent regimes. Equally important is the distinction it can make in time-independent regimes between sticky and wildly chaotic epochs during the evolution of chaotic orbits. Its most important advantage over the existing methods is, that it characterizes an orbit using information from a very small number of orbital periods. For these reasons the new method is extremely promising to be useful and effective in a broad spectrum of disciplines.

For more information visit

<http://www.aps.anl.gov/asd/physics/seminar.html>

Visitors from off-site please contact Chun-xi Wang
(wangcx@aps.anl.gov, 630-252-4968) to arrange for a gate pass.

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