Order and Chaos in Hamiltonian Dynamical Systems

Tetsuro Konishi
Department of Phyics, Nagoya University, Nagoya, 464-8602, Japan

In this talk we show some examples in classical Hamiltonian systems which have ordered structures such as clusters by its own dynamics. The systems consist of particles with long-range interaction, just like many-body systems in astrophysics. Since the systems are Hamiltonian systems, the spatial structures thus formed are not "attractors" or asymptotic states we observe in the infinite future. Rather the states are observed in the course of relaxation to thermal equilibrium, or in the course of itinerancy among several quasi-stationary states.