



SCUOLA
NORMALE
SUPERIORE
PISA

SEMINARIO DI SISTEMI DINAMICI

mercoledì 20 ottobre 2010

ore 16.00

Scuola Normale Superiore

Pisa

(Sala Conferenze Collegio Puteano)

Viviane Baladi

Terrà un seminario dal titolo:

“Linear response for generic smooth unimodal maps”

(Joint with Daniel Smania)

Many interesting dynamical systems admit a "natural" or "physical" measure, which describes the asymptotic time averages of a positive Lebesgue measure set of initial conditions. This measure is called the SRB measure, for Sinai-Ruelle-Bowen. When a smooth one-parameter family f_t of dynamical systems admits for all (or many) small parameter t a unique SRB measure μ_t , it is natural to ask if the map $t \rightarrow \mu_t$ is also smooth (possibly in the sense of Whitney). In 1997, David Ruelle solved the case when the f_t are smooth and uniformly hyperbolic, obtaining a formula for the derivative: the linear response formula. Ten years later, Daniel Smania and I discovered by studying a "toy model" (piecewise expanding maps) that the presence of critical points (which destroy structural stability) may cause obstructions to linear response. We proved that the condition of "tangency" of the family to the topological class was necessary and sufficient for linear response to hold. For smooth nonuniformly hyperbolic unimodal maps, the situation is much more difficult, and for the moment one only considers families f_t which remain in the topological class of f_0 . Up to 2009, only (nongeneric) situations very close to hyperbolic had been tackled (Ruelle, B-Smania). We shall present a recent joint result with Daniel Smania (available on arxiv.org), which holds under a generic recurrence condition.

Tutti gli interessati sono invitati a partecipare.

Classe di Scienze