INSTITUTO DE MATEMÁTICA
Universidade Federal do Rio de Janeiro

Matemática
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Minicourse
Pressure in dimension theory
of nonuniformly hyperbolic systems

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Abstract: Hyperbolic dynamical systems are nowadays well understood and the so-called thermodynamic formalism provides detailed information about, for example, their stochastic-like properties, fractal dimension of invariant sets, equilibrium states, multifractal spectra, and Lyapunov exponents, among others. One very successful approach to nonuniformly hyperbolic systems is to approximate them with hyperbolic subsystems. This approach was successfully applied, for example, for Markov maps on the interval, for non-exceptional rational maps of the Riemann sphere, for multimodal maps of the interval, and to partially hyperbolic step-skew products. The pressure functional is a most natural tool for this approach: the pressure of a hyperbolic system describes many of its dynamical properties (including the spectrum of Lyapunov exponents).
In the course I will give a very short introduction to the thermodynamical formalism, then give a short introduction to the multifractal formalism, finally I will present the approximation method (bridges, hidden pressure,...) itself.

Lecture 1 10/04, 17:00, PUC-Rio, sala 856
Lecture 2 17/04, 14:00, IM-UFRJ, CT-C116
Lecture 3 24/04, 17:00, PUC-Rio, sala 856