

DYNAMICS SCHOOL AT THE CENTRO DI RICERCA MATEMATICA ENNIO
DE GIORGI
FROM JANUARY 25th TO FEBRUARY 5th, 2010

Title. Periodic approximation in dynamics

Organizers. Bassam Fayad (Paris 13, fayadb@math.univ-paris13.fr), Anatole Katok (Penn State University, katok_a@math.psu.edu), Raphaël Krikorian (Paris 6, raphael.krikorian@courriel.upmc.fr), Stefano Marmi (Pisa, s.marmi@sns.it).

Local organizing committee. Carlo Carminati (Pisa, carlo.carminati@fastwebnet.it).

The scientific committee. Hakan Eliasson (IMJ Paris, hakane@math.jussieu.fr), Giovanni Forni (Maryland University, gforni@math.umd.edu), Antonio Giorgilli (Antonio Giorgilli, Milano, Antonio.Giorgilli@mat.unimi.it), Jean-Christophe Yoccoz (Collège de France Paris, jean-c.yoccoz@college-de-france.fr).

The courses

1. Periodic approximation in measurable dynamics and surface homeomorphisms. François Beguin (Orsay University Paris, Francois.Beguin@math.u-psud.fr) and Frédéric Leroux (Orsay University Paris, Frederic.Le-Roux@math.u-psud.fr).
2. Fast periodic approximations and constructions by successive conjugations. Bassam Fayad (Paris 13 University) and Anatole Katok (PSU State College).
3. Quasi-periodic cocycles with Liouvillean frequencies. Raphaël Krikorian (Paris 6 University) and Jairo Bochi (PUC Rio de Janeiro).
4. Julia sets with positive measure. Xavier Buff (Toulouse, xavier.buff@univ-toulouse.fr) and Arnaud Chéritat (Toulouse, arnaud.cheritat@univ-toulouse.fr).

Aims. The Dynamical Systems school on Periodic Approximations in Ergodic Theory will focus on the study of periodic approximations as a tool to understand the ergodic properties of deterministic dynamical systems, and as a method of construction of examples (and counter-examples) of ergodic

behavior, especially in dynamics related to quasi-periodic motion, such as perturbations of completely integrable systems, KAM theory, Arnol'd diffusion theory, quasi-periodic cocycles, Schrödinger equation, 1-dimensional complex dynamics around elliptic fixed points, etc. The topics included in the courses cover areas of dynamics that have been experiencing a growing activity recently, raising interests among many young researchers and doctoral students both in Europe and in the US.

The school will be aimed at student and young researchers and its goal is to provide them with the state of the art ideas and techniques of the included topics. We expect 30 to 40 participants to attend the School.

Our proposal to hold the school at the De Giorgi Center is motivated by the excellent scientific and logistic environment offered by the Center and the Scuola Normale. The school is also very naturally related and complementary in its theme to the successful Trimester on small divisors held at Pisa in 2002 by Pr. Stefano Marmi.