

National Mathematics Year

Mathematical Panorama Lectures on "Dynamics of Vector Fields"



by

Professor Étienne Ghys
École Normale Supérieure, Lyon (France)

Venue: TIFR Mumbai • 9 - 14 April 2012

The 125th birth anniversary of Srinivasa Ramanujan falls in 2012. Government of India has declared it as the National Mathematics Year at the request of the Ramanujan Mathematical Society. Several mathematical activities are planned during 2012 and 2013. Among them a series of surveys called

Mathematical Panorama Lectures

are being planned. These are lecture courses given by eminent mathematicians on diverse topics of current research. These survey lectures will be accessible to research scholars and lead upto recent developments.

About the Speaker



Professor Étienne Ghys is a Distinguished Professor of CNRS, France. He is a Fellow of the French Academy of Sciences of "l'Institut de France" and was one of the Plenary speakers at the International Congress of Mathematicians at Madrid (2006). D'Alembert medal of the French Mathematical Society (2010) and "Docteur Honoris Causa" of the University of Geneva (2008) are some of his numerous other honours. He has made important contributions in various areas of mathematics including differential geometry, global analysis, dynamical systems and ergodic theory.

Abstract

The dynamics of vector fields on surfaces is fairly well understood. Starting from dimension 3, one can encounter more complicated and interesting phenomena, like chaotic behaviour for instance. In this series of talks, I would like to give a general introduction to the qualitative dynamics of flows 3-manifolds. I will begin at a very elementary level and I will describe a great number of significant examples. Then, depending on time, I shall discuss the following three aspects : many attempts to describe all Anosov flows and some conjectures, search for periodic solutions, around the Seifert and Weinstein's conjectures, Kuperberg example, Hofer and Taubes's theorem, and the conjecture in the volume preserving case. The construction of Birkhoff sections, the concept of left handed vector field, and conjectures concerning geodesic flows in negative curvature.

Application Procedure

Eligibility for participation: Applications are invited from NET/SET/NBHM qualified Ph. D. scholars and post-doctoral fellows and young faculty members.

Financial Support: Selected participants will be paid II-AC return train fare from their place of work to the venue by shortest route and provided with accommodation and local hospitality.

How to Apply: Application forms and other information about the programme are available on the website:

<http://www.atmschools.org>

Application on plain paper may also be sent by post. The following information needs to be included in the application: (1) Full Name (2) Date of birth (3) Date of joining Ph. D. programme and department where enrolled (4) Scholarship held (5) Gender (6) Mailing Address and email address. (7) Telephone number (8) Is accommodation required? (9) Name of thesis advisor and broad research area.

Paper applications or applications by email must reach the addresses given below by March 5, 2012.

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List of selected candidates will be posted on the websites of ATM Schools on March 7, 2012.