



The Abdus Salam
International Centre for Theoretical Physics

United Nations
Educational, Scientific
and Cultural Organization

International Atomic
Energy Agency

Workshop on **DRIVEN STATES IN SOFT AND BIOLOGICAL MATTER**

18 - 28 April 2006
(Miramare - Trieste, Italy)

Co-sponsored by the National Centre for Biological Sciences, Bangalore

The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) is organizing a Workshop on "Driven States in Soft and Biological Matter", to be held at the ICTP from 18 to 28 April 2006. The Workshop will be directed by Professors **Gautam MENON** (IMSc, Chennai, India), **Jacques PROST** (ESPCI, Paris, France), **Sriram RAMASWAMY** (IISc, Bangalore, India) and **Madan RAO** (RRI and NCBS, Bangalore, India).

Soft-matter systems are at the frontier of materials science and provide a marvellous laboratory for the study of phenomena far from thermal equilibrium. The interface of soft condensed matter physics with the life sciences holds great promise for novel experiments and theory. Physical understanding and calculational techniques developed in the context of one field may well prove relevant and important to the other. Close and useful analogies exist between the behaviour of certain driven soft-matter or granular systems and biologically important processes such as self-propulsion and cell division; these can be exploited to elucidate the physical principles underlying the latter. In what we expect will be a highly interactive Workshop, we aim to highlight recent progress on our understanding of collective mechanical response and statistical fluctuations in living or otherwise driven matter, and hope to chart a course for the future of this exciting field.

We will focus on: the physics and biology underlying shape-change, motility, trafficking and cell-division in living cells and extracts; flocking, long-range order and collective motion of organisms; shear flow and sedimentation in surfactant and colloidal systems, driven fluid interfaces, drifting flux lattices, as well as soft-matter and granular analogues of motility and flocking. The aim of this Workshop is to bring together biologists, physicists, engineers, and physical chemists working on this broad family of problems and to stimulate interactions and collaborations among them.

The Workshop will consist of 4 talks per day, two in the morning and two in the afternoon. This will allow ample time for interaction and discussions.

Participants are also encouraged to contribute with a poster.

PARTICIPATION

Scientists and students from all countries that are members of the UN, UNESCO or IAEA can attend the activity. Although the main purpose of the Centre is to help researchers from developing countries through a programme of training activities within the framework of international cooperation, a limited number of students, post-doctoral scientists and researchers from developed countries are also welcome to attend. As the Workshop will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants, who are nationals of, and working in, a developing country, and who are not more than 45 years old. Such support is available only to those attending the entire Workshop. There is no registration fee to attend this activity.

The closing date for the receipt of requests for participation is: 10 December 2005.

The **Application Form** is obtainable from the ICTP WWW server: <http://agenda.ictp.it/smr.php?1746> (which will be constantly up-dated) or from the activity Secretariat (smr1746@ictp.trieste.it). It should be completed, signed and returned before **10 December 2005 to:**

The Abdus Salam International Centre for Theoretical Physics
Workshop on Driven States in Soft and Biological Matter (smr.1746)
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I-34014 Trieste, Italy

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<http://agenda.ictp.it/smr.php?1746>

ORGANIZERS

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Madan RAO
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Local Organizer

Silvio FRANZ (ICTP, Trieste, Italy)

INVITED SPEAKERS

A. AJDARI
I. ARANSON
A. BERSHADSKY
M. BORNENS
F. BROCHARD-WYART
M. CATES
H. CHATE
I. COHEN
Y. COUDER
P.-G. de GENNES
T. DUKE
E. FREY
R. GOLESTANIAN
N. GOV
H. GRULER
K. JACOBSEN
J. KAES
K. KRUSE
A.J.C. LADD
T.B. LIVERPOOL
A.A. LOUIS
F.C. MacKINTOSH
L. MAHADEVAN
M. C. MARCHETTI
S. MAYOR
F. NEDELEC
P. OLMSTED
T. PEDLEY
M. SHEETZ
K. SHOWALTER
A.K. SOOD
J. SPUDICH
T. SQUIRES
C. SYKES
A. VERKHOVSKY
R. VOITURIEZ
K. YOSHIKAWA

DEADLINE:
10 DECEMBER 2005