



Advanced Workshop on Nonlinear Photonics, Disorder and Wave Turbulence

15-19 July 2013

Miramare - Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP, Trieste, Italy) in cooperation with Aston Institute of Photonic Technologies, Novosibirsk State University, Institute of Automatics and Electrometry, Russian Academy of Science, Nanophotonics for Energy Efficiency Network of Excellence, European Laboratory for Non-Linear Spectroscopy, is organizing an **Advanced Workshop on Nonlinear Photonics, Disorder and Wave Turbulence**, to be held in Trieste from **15 to 19 July 2013**.

This Workshop brings together a number of leading experts in the physics of disordered systems, nonlinear science, wave turbulence, nonlinear photonics and fibre optics to discuss recent progress and synergy emerging at the interface of these fields.

The study of wave propagation and localization in disordered media is a fundamental problem having interdisciplinary links with a range of practical applications. Photonics is one of the examples where the ideas and concepts originating in the theory of disordered systems found numerous research demonstrations and engineering applications. In particular, the concept of random lasers exploiting multiple scattering in amplifying disordered media to generate coherent light has attracted a great deal of attention in recent years. Recent general advances in lasers and fibre optics have created new opportunities both for the studies of disordered systems using high precision optical experiments and for applications and development of new concepts in photonics. In particular, nonlinear effects in periodic and disordered optical systems are expected to lead to new interesting phenomena and photonic manifestations of classical physical effects from solitons to turbulence. Wave turbulence is a fundamental physical problem that has numerous applications far beyond its origin in fluid mechanics. This is a problem of describing the state of a system with many degrees of freedom far from thermal equilibrium. The optical wave turbulence makes an interesting link between classical field of turbulence and lasers playing a role of the key physical phenomenon underlying operation of an important and a fast developing class of lasers - fibre lasers.

TOPICS

- wave transport in disordered systems and localization;
- wave turbulence;
- nonlinear photonics
- random lasers;
- nonlinear optical random systems;
- fibre optics.

The Workshop will consist of comprehensive pedagogical lectures given by key experts in each of the fields and will allow ample time for discussions.

PARTICIPATION

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

As a rule, travel and subsistence expenses of the participants should be borne by the home institution. 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. Such support is available only for those who attend the entire activity. **There is no registration fee.**

HOW TO APPLY

The application form can be accessed at the activity website:

<http://agenda.ictp.it/smr.php?2472>

Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit online the application form **not later than 17 March 2013**. Recommendation letters are not mandatory, but may help you in the admission process.

Secretariat:

Ms. Federica Delconte e-mail: smr2472@ictp.it phone: +39-040-2240-9932; fax: +39-040-2240-7932

Workshop's web page: <http://agenda.ictp.it/smr.php?2472>

ICTP Home Page: www.ictp.it



CO-SPONSORS:

 Aston University



nanophotonics
for energy efficiency

DIRECTORS & SPEAKERS:

VLADIMIR ZAKHAROV (USA)

YURI KIVSHAR (AUSTRALIA)

DIEDERIK WIERSMA (ITALY)

SERGEI TURITSYN (UK)

LOCAL ORGANIZER:

J. NIEMELA (ICTP, ITALY)

SPEAKERS:

A. Newell (Arizona, USA)

M. Segev (Technion, Israel)

G. Falkovich (Weizmann, Israel)

H. Cao (Yale, USA)

I. Kolokolov (Landau Inst, Russia)

V. Lebedev (Landau Inst, Russia)

D. Solli (UCLA, USA)

E. Kuznetsov (Moscow, Russia)

S. Gredeskul (Beer-Sheva, Israel)

E. Podivilov (Novosibirsk, Russia)

S. Babin (Novosibirsk, Russia)

M. Berry (Bristol Uni, UK)

A. Picozzi (Dijon, France)

C. Conti (Roma, Italy)

V. Freilikher (Raman-Gan, Israel)

I. Gabitov (SMU, USA)

S. Nazarenko (Warwick, UK)

S. Galtier (Paris, France)

P. Sebbah (Paris, France)

N. Berloff (Cambridge, UK)

S. Skipetrov (Grenoble, France)

S. Fishman (Technion, Israel)

B. Rumpf (SMU, USA)

D. Shepelyansky (Toulouse, France)

DEADLINE

for receipt of applications

17 MARCH 2013