

IUTAM SYMPOSIUM 2014

Complexity of Nonlinear Waves

Tallinn, Estonia, 8-12 September,
2014

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Hosting Institution: Institute of Cybernetics at Tallinn University of Technology, Estonia

Dates: 8 – 12 September 2014

Wave motion is the key mechanism of interest to many fields of science, such as mechanics, acoustics, seismology, oceanography, coastal and offshore engineering, electromagnetism, etc. Despite an extreme variety of physical appearances of wave phenomena, different disciplines share many mathematical models and numerical methods.

In recent years there is an increased interest in advanced mathematical models and computational methods for wave problems across the borders of specific applications. The conceptual similarity of mathematical models for wave motion in solids and fluids leads to similar formalism in analysis. Our purpose is to foster research into different aspects of nonlinear wave phenomena – the theoretical, the computational and the applied – through promoting the transfer of competence over the existing borders of classical research disciplines. The synergy of many fields will serve as final goal.

We focus on essentially nonlinear problems where complicated original mathematical models are derived, innovative ideas are applied for computing, and novel applications are intensively created in a number of research fields. Interaction of nonlinearity with accompanying effects such as changing properties of the medium sheds further light to understanding and forecast of physical phenomena. The Symposium will provide a forum for presentation and discussion of innovative complex models and methods including computer based simulation of dynamical processes in mechanics.

The main organiser of the Symposium is the Centre of Nonlinear Studies (CENS) at Institute of Cybernetics, where the complexity of wave fields in solids and fluids has been one of the focal issues for a long period (a previous IUTAM Symposium in 1982). One of the key speakers at the symposium will be Prof. Jüri Engelbrecht, the Head of CENS,

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who will celebrate his 75th anniversary in 2014.

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