SYSN 1 SYSN I

Zeit: Freitag 14:00–16:00 Raum: HU Audimax

Hauptvortrag SYSN 1.1 Fr 14:00 HU Audimax

Optical Fiber Solitons: Perturbations and Interactions — •Fedor Mitschke — Institut für Physik, Universität Rostock, 18051 Rostock

Solitons are the natural bits for information transfer via optical fiber. The particle-like properties of solitons include their interaction forces, and a remarkable resilience to perturbations. Solitons both bright and dark, survive strong perturbations in dispersion-managed fiber. In feedback loops, ensembles of solitons are shaped by mutual interaction. The talk also addresses the possibility of compound solitons, or *soliton molecules*.

Hauptvortrag SYSN 1.2 Fr 14:30 HU Audimax

Solitons and nonlinear waves in photonic lattices — •Mordechai Segev — Physics Department, Technion,Haifa 32000, Israel

Solitons in lattices are a universal phenomenon, common to all nonlinear periodic structures in nature, from optical waves and matter-waves to vibrational waves and spin waves. The past few years have witnessed several breakthroughs in this area, especially with nonlinear optical systems. I will review this recent progress with an emphasis on the universality of the underlying physics.

Hauptvortrag SYSN 1.3 Fr 15:00 HU Audimax

Dissipative Optical Solitons — •Ulf Peschel — Institute of Solid State Physics and Optics, Friedrich-Schiller-University Jena, Max-Wien-Platz 1, 07743 Jena, Germany

Losses due to absorption or scattering are always present in real-world optical systems. The active compensation of energy dissipation is therefore vital for any kind of application. It also leads to the formation of new and surprisingly robust localized structures, which exchange energy with their environment. The aim of the talk is to discuss the properties of these so-called dissipative optical solitons for both the spatial and the temporal domain.

Hauptvortrag SYSN 1.4 Fr 15:30 HU Audimax

Nonlinear lattice breathers and solitons: concepts and applications — •Sergej Flach — MPI für Physik komplexer Systeme, Noethnitzer Straße 38, 01187 Dresden

I will introduce mathematical concepts for obtaining localized excitations in nonlinear lattices, review the rich variety of experimental realizations, and discuss recent applications with particular focus on systems of interacting Josephson junctions and nonlinear optical waveguides.