ESI SENIOR RESEARCH FELLOW
LECTURE COURSE
Summer Term 2021

The Erwin Schrödinger International Institute for Mathematics and Physics (ESI) of the University of Vienna offers the following Lecture Course held by a Senior Research Fellow in residence during the Summer Term 2021:

Soliton stability in nonlinear dispersive PDEs set on the line
Pierre Germain (Courant Institute of Mathematical Sciences, New York University)

Lecture Course (250072 VO): April 13 - May 25, 2021
Time: 13:30 - 15:00
Start: Tuesday, April 13, 2021
End: Tuesday, May 25, 2021

Venue: ESI, Schrödinger Lecture Hall

Abstract:
This class will provide an overview of the subject of soliton stability in dimension one. Solitons are fundamental objects in nonlinear wave equations, or nonlinear physics in general, and the question of their stability is the first one to ask. Much progress has been made since the 70's, but much remains to be done in this exciting field! The mathematical tools which come into play are nonlinear functional analysis and Fourier analysis.

Content of the lecture course (tentative):
1. The Physics and the structure of the equations
2. The distorted Fourier transform
3. Linear estimates: dispersive and Strichartz estimates
4. Orbital stability
5. Asymptotic stability & modulation
6. Asymptotic stability & resonances
7. Internal modes and Bremsstrahlung

Aims for the course:
Provide an overview of the subject of soliton stability in dimension one

Course website: https://www.esi.ac.at/events/e422/

Christoph Dellago
Director