Nonlinear wave equations and applications

Prof. Dario Bambusi

Università degli Studi di Milano
Dipartimento di Matematica "F. Enriques"
Email: dario.bambusi@unimi.it

Duration: 12 hours.
Location: Mathematics Department (Torre Archimede), Room 2BC/30.
Timetable:

- Tuesday, 27 May 2014, 14.30-17.30
- Wednesday, 28 May 2014, 09.30-12-30
- Thursday, 29 May 2014, 09.30-12.30
- Friday, 30 May 2014, 09.30-12.30

Course requirements: no prerequisite knowledge of the subject is required.

Examination and grading: to be decided by the Lecturer.

SSD: MAT/07 (Mathematical Physics)

Course contents:
Deduction of the Euler equations for fluids and of the surface water wave equations. Lagrangian and Hamiltonian formulation of the problem: Lagrangian of the water wave equations, Dirichlet-Neumann operator, and Hamiltonian setting of the problem. Averaging principle and its application to the shallow water wave problem. Deduction of the Korteweg-de Vries equation as an effective equation. Applications to Tsunami propagation.