Pontificia Universidad Católica del Perú

Escuela de Posgrado & Sección Matemáticas

Seminario de Matemática

Nonlinear wave dynamics in fluids

Marcelo V. Flamarion

Pontificia Universidad Católica del Perú

Abstract: In this talk, we will set sail through the choppy waters of recent problems in fluid dynamics. Fluid dynamics is a multidisciplinary field that ropes in oceanography, electrohydrodynamics, plasma physics, quantum physics, and a whole bunch of other fancy words. We will explore the mathematics behind the formation of those monstrous ocean waves known as rogue waves, making the concepts accessible to a broad audience. These giants can pose significant threats to coastal areas, small boats, and beachgoers. We will also dive into solitons—particle-like structures that propagate at constant speed while preserving their shape—and examine their interactions with each other and with external forces. Finally, we will take a brief dive into the deep waters of nonlinear waves to uncover the mysteries of particle trajectories beneath the surface—all while staying perfectly dry, of course!

Date: Thursday, September 19, 2024
Schedule: 13:00 - 14:00
Venue place: "Auditorio de Matemáticas"