



Applied and Computational Mathematics Seminar

Title: Nonlinear resonance analysis (NRA) – what is it for?

Speaker: Elena Kartashova (Research Institute for Symbolic Computation, Johannes Kepler University, Austria)

Date: Fri 6th February 2009 at 3:30PM

Location: Mathematical Sciences Teaching Room

Abstract: NRA is a new fast developing area of mathematical physics. Its importance is due to the fact that nonlinear resonances (NRs) are ubiquitous in physics. For instance, Euler equations, regarded with various boundary conditions and specific values of some parameters, describe an enormous number of nonlinear dispersive wave systems all possessing NRs. NRs are used in astronomy to determine whether the object is a black hole, in medicine – to determine whether biological tissue has cancer cells, etc. etc.

In this talk I am going to give a brief overview of the available methods and results, and illustrate it with some examples from fluid mechanics. Important open questions will be formulated at the end.