Event: Applied Mathematics Seminar

Date and time: Thursday Jan 26, 2017 3:30 pm

Where: Arts 134

Speaker: Professor Dmitry Pelinovsky, McMaster University

Title: "Granular chains and the logarithmic KdV equation"

Abstract:

"Granular chains of particles coupled by Hertzian forces are modeled the Fermi–Pasta–Ulam (FPU) lattices with fractional power nonlinearity. Solitary waves in such strongly nonlinear systems without pre-compression have fast (double-exponential) decay. I will discuss the asymptotic limit, where the FPU lattice can be reduced formally to the logarithmic Korteweg–de Vries (KdV) equation which possesses linearly orbitally stable Gaussian solitary waves. I will overview the existence and stability problems in the time evolution of the logarithmic KdV equation and the associated difficulties in the justification of this approximation."