Topics in variational problems arising from models in physics

Będlewo 24-29 July 2022

Speaker: Jacek Jendrej (CNRS and Université Sorbonne Paris Nord)

Title: Soliton resolution for the energy-critical wave maps equation in the equivariant case

Abstract: I will present a joint work with Andrew Lawrie (MIT) on the wave maps equation $\mathbb{R}^{1+2} \to \mathbb{S}^2$ in the case of initial data having the equivariant symmetry. We prove that every solution of finite energy converges in large time to a superposition of harmonic maps (solitons) and radiation. It was proved by Côte, and Jia and Kenig, that such a decomposition is true for a sequence of times. Combining the study of the dynamics of multi-solitons by the modulation technique with the concentration-compactness method, we prove a "non-return lemma", which allows to improve the convergence for a sequence of times to convergence in continuous time.