Luca Battaglia (Rome Sapienza)

Entire solutions for Liouville systems

Abstract

I will consider a system of two coupled Liouville equations on the plane $\mathbb{R}^2$. The system admits so-called "scalar" solutions, namely such that the two components $u_1(x)$, $u_2(x)$ coincide. These solutions actually solve a scalar Liouville equation on the plane, hence they are very well known and they have been completely classified. On the other hand, much less is known about non-scalar solutions. Using bifurcation theory, I will show the existence of some branches of (non-scalar) solutions bifurcating from a scalar solution. This is a joint work with Francesca Gladiali (Università di Sassari) and Massimo Grossi (Sapienza – Università di Roma).