

Dr. Monica Musso

University of Bath

UK

Since February 2018, Monica Musso has been a Professor at the University of Bath. Her previous positions were at the Universidad Católica de Chile (since 2004, becoming a professor in 2012) and at the Politecnico di Torino (since 1999, holding a permanent position as Ricercatore). She earned her PhD in 1997 from the Università di Pisa and worked as a postdoctoral researcher at the International School for Advanced Studies (SISSA) in Trieste during 1998.

Her research primarily focuses on Nonlinear Analysis and Partial Differential Equations. Some of the specific topics she explores include singularity formation in elliptic and parabolic equations, concentration phenomena in critical problems, the Fractional Yamabe problem, and vortex dynamics for the Euler equations.

Title: Long time behavior for vortex dynamics in the 2 dimensional Euler equations

Abstract:

The evolution of a two-dimensional incompressible ideal fluid with smooth initial vorticity concentrated in small regions is well understood over finite time intervals: as these regions shrink to zero, the vorticity converges to a superposition of Dirac deltas centered on collision-free solutions of the point vortex system. Although the point vortex system exhibits globally smooth solutions for generic initial conditions, the long-term behavior of the fluid vorticity remains much less understood.

We consider two scenarios: the case of two vortex pairs traveling in opposite directions and that of an expanding self-similar configuration of vortices. Using gluing methods we describe the global dynamics of this configuration. This work is in collaboration with J Davila, M. del Pino and S. Parmeshwar.