

# Elliptic equations and minimal surfaces

## Organizers:

José M. Espinar (Universidad de Cádiz, Spain and IMPA, Brazil)

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The aim of this session is to gather people from two thematics : elliptic PDE and minimal surface theory. Actually these subjects have a strong influence on each other and share some similar developments. For example, the Allen-Cahn equation is the perfect intersection between these two worlds. This equation model interfaces problem from a PDE point of view. Actually minimal surfaces can be used to produce solutions of the Allen-Cahn equation and conversely minimal surfaces can be obtained by a limiting process from solutions to the Allen-Cahn equation.

In this session, some recent results at the interface between elliptic PDE and minimal surfaces will be presented. On the PDE side, they will deal with several subjects like overdetermined problems, construction of PDE solutions with prescribed geometry, Monge-Ampre equations, crystallization phenomena.

Concerning the minimal surface theory, the talks will present some recent developments about existence and classification theory. There will be also some applications of minimal surfaces to other fields of geometry. For instance, minimal surfaces play a crucial role in the proof of the Poincaré conjecture by Perelman, in the recent proof of the Willmore conjecture by Marques and Neves and also in the mathematical theory of general relativity.

## Speakers:

Lucas Ambrozio (IAS, USA)

Márcio Batista (Universidade Federal de Alagoas, Brasil)

Benoît Daniel (Université de Lorraine, France)

Asun Jiménez (Universidade Federal Fluminense, Brasil)

Laurent Mazet (Université de Tours, France)

Frank Pacard (École Polytechnique, France)

Paolo Piccione (Universidade de São Paulo, Brasil)

Álvaro Ramos (Universidade Federal do Rio Grande do Sul, Brazil)

Etienne Sandier (Université Paris-Est - Créteil, France)

Pieralberto Sicbaldi (Universidad de Granada, España, and Université de Marseille, France)

Martin Traizet (Universit de Tours, France)