CMM
Center for
Mathematical
Modeling

cmm.uchile.cl

Beauchef 851, Edificio Norte, piso 7
Santiago, CHILE
CP 837 0456

tel +56 2 2978 4870

DIM-CMM PDE Seminar

Speaker: Mircea Petrache (PUC)

Title: Clearing-out of dipoles for minimisers of 2-dimensional discrete energies with topological singularities.

Abstract: A key question in the analysis of discrete models for material defects, such as vortices in spin systems and superconductors or isolated dislocations in metals, is whether information on boundary energy for a domain can be sufficient for controlling the number of defects in the interior. We present a general combinatorial dipole-removal argument for a large class of discrete models including XY systems and screw dislocation models, allowing to prove sharp conditions under which controlled flux and boundary energy guarantee tohave minimizers with zero or one charges in the interior. The argument uses the max-flow min-cut theorem in combination with an ad-hoc duality for planar graphs, and is robust with respect to changes of the function defining the interaction energies.

For those unable to attend in person, the talk will also be available

Via Zoom at the following link:
https://uchile.zoom.us/j/93613339766?pwd=vB3J7Vhb0EX3kQDHfH741CKN19YKQz.1

Wednesday 29th, at 16:15 hs in the Sala de Seminarios (Beauchef 851, DIM, fifth floor).

For further information, see our webpage: https://eventos.cmm.uchile.cl/pdeseminar/