

# Colloquium ICMAT-UCM

## INTEGRABLE PDES AND PENTAGRAM MAPS

**SPEAKER:** Boris Khesin (University of Toronto)

**DATE:** Wednesday, 16th December 2020 - 17:30

**PLACE:** Online - Zoom:

[zoom.us/j/96217594283?pwd=R29lOTdyNDZF5STRrTC9GK25RZHFZdz09](https://zoom.us/j/96217594283?pwd=R29lOTdyNDZF5STRrTC9GK25RZHFZdz09)  
(ID: 962 1759 4283; access code: 932294)

**ABSTRACT:** The pentagram map was originally defined by R.Schwartz in 1992 as a map on plane convex polygons, where a new polygon is spanned by the “shortest” diagonals of the initial one. It turned out to be a beautiful discrete completely integrable system with many relations to other mathematical domains. We describe various extensions and the geometry of this map in higher dimensions. We also describe the corresponding continuous limits of such maps, which happen to coincide with equations of the KdV hierarchy, generalizing the Boussinesq equation in 2D. This is a joint work with Fedor Soloviev and Anton Izosimov.