



# Analysis, Algebra & Geometry Meetings

DIPARTIMENTO SMFI - UNIVERSITÀ DI PARMA

**18.04.2024**

**14:15**

SALA RIUNIONI - PLESSO DI MATEMATICA

GIOVANNI FRANZINA (ISTITUTO “MAURO PICONE”, CNR ROMA)

## AN OVERDETERMINED PROBLEM IN 2D LINEARIZED HYDROSTATICS

We are interested in the boundary values of the vorticity transported by a two-dimensional incompressible viscous fluid confined within rigid walls, and in the relation between them and the pressure gradient. We discuss the rigidity of Neumann's boundary conditions when solving for the pressure in the formal low Reynolds number limit, and we prove a related fact: that, in the class of smooth and simply connected planar open sets, the disc is the only possible minimiser under area constraint for the least eigenvalue for Stokes' operator in 2D.