THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PDE

On the uniqueness and monotonicity of solutions of Grad-Shafranov type equations

Prof. Daniele BARTOLUCCI
University of Rome

Abstract

We report about a series of results concerning a Grad-Shafranov type equation, which in dimension 2 describes the equilibrium configurations of a plasma in a Tokamak. In a neat interval depending only by the Sobolev constant of the domain we deduce uniqueness and monotonicity of the boundary density and of a suitably defined energy. Interestingly enough, in dimension 2 we derive the sharp values of the positivity threshold and of the energy upper bound. We also answer open questions about the lack of free boundary and generic properties of the global bifurcation diagram. This is part of a joint research project with A. Jevnikar (Udine), Y. Hu (Changsha), W. Yang (Wuhan).

Date : **8 April 2022 (Friday)**

Time : **4:00pm**

Zoom Meeting : **https://hkust.zoom.us/j/91049946922** (**Passcode: 399051**)

All are Welcome!