

東工大数理解析研究会

日時 : 2012年2月6日(月) 10:30~17:30

場所 : 東京工業大学大岡山キャンパス本館2階213室

主催者 : 柳田英二, 宮本安人, 物部治徳

プログラム

10:30–11:20 滝本 和広 (広島大学)

“The existence and uniqueness of boundary blowup solutions to k -curvature equation”

The boundary blowup problem arises from physics, geometry and many branches of mathematics. In this talk, we discuss the existence and uniqueness of boundary blowup solutions for the so-called k -curvature equation, which is a fully nonlinear equation in general.

11:30–12:20 菅 徹 (東北大学)

“Global structure of the solution set for a semilinear elliptic problem related to the Liouville equation on an annulus”

We consider the bifurcation structure of a semilinear elliptic problem related to the Liouville equation on a two-dimensional annulus. The problem appears as the limiting problem of the Liouville equation as the inside radius of the annulus tends to 0, and is derived by the method of matched asymptotic expansions. We find explicit solutions including non-radially symmetric solutions and determine the connected component containing the solutions. As a consequence, we provide a suggestive evidence for the global structure of the solution set of the Liouville equation.

===== お昼休み =====

13:30–14:20 Michel Chipot (Zurich University, Switzerland)

“Obstacle problems in unbounded domains”

We will present a formulation of obstacle problems in unbounded domains when the energy method does not work i.e. when the force does not belong to $H^{-1}(\Omega)$.

14:30–15:20 壁谷 喜継 (大阪府立大学)

“Unified approach to nonlinear elliptic equations on the hyperbolic space or on a spherical cap”

We consider nonlinear elliptic equations on the whole hyperbolic space or on a spherical cap. We investigate structures of positive solutions of the equations in a unified way by using the transformation developed by Yanagida Yotsutani. This talk is based on the joint work with C. Bandle (Universität Basel).

===== 休憩 =====

15:40–16:30 内藤 雄基 (愛媛大学)

“Separation structure of positive radial solutions for semilinear elliptic equations”

We consider positive radial solutions for semilinear elliptic equations in the whole space. We say that the equation has separation structure if any two positive radial solutions do not intersect each other. In this talk, we will give some remarks on the separation and intersection properties of the solutions.

16:40–17:30 坂元 国望 (広島大学)

“Variations of Turing type instability”

The purpose of this talk is to display various types of instability from uniform steady states in diffusion systems with nonlinear interactions. The interactions may take place either in the interior or on the boundary of spatial domains. The essential feature in all of the variations is the existence of unstable subsystems in a stable full system.

18:00 ~ 懇親会