

Department of Mathematics
City University of Hong Kong

Colloquium

Organised by Prof. Tong YANG and Dr Xianpeng HU

Existence and Asymptotic Large Time Behavior of Singular Solutions of the Fast Diffusion Equation

by

Professor Kin Ming Hui
Institute of Mathematics, Academia Sinica
Taiwan

Abstract:

In this talk I will prove the existence and asymptotic large time behavior of singular solutions of the fast diffusion equation $u_t = \Delta u^m$, $u > 0$, in $(\mathbb{R}^n \setminus \{0\}) \times (0, \infty)$ for any $0 < m < \frac{n-2}{n}$, $n \geq 3$.

We will construct self-similar solutions of the fast diffusion equation in $(\mathbb{R}^n \setminus \{0\}) \times (0, \infty)$ with initial value $A|x|^{-\gamma}$ for some constant $\frac{2}{1-m} < \gamma < \frac{n-2}{m}$. When $\frac{2}{1-m} < \gamma < n$, we prove that if the initial data is some weighted L^1 perturbation of such self-similar singular solution, the singular solution of the fast diffusion equation will converge to the self-similar singular solution as time goes to infinity. This is joint work with Soojung Kim.

Date: 29 September 2017 (Friday)
Time: 3:30 – 4:20pm
Venue: B4702, Yeung Kin Man Academic Building (AC1)
City University of Hong Kong

**** All interested are welcome ****
For enquiry : 3442-5488

