Online Seminar on Chemotaxis

Date: 14th of January 2022 10:00 – 11:00 in "Madrid" hour
(which is 17:00 – 18:00 in "Beijing" hour and 18:00 – 19:00 in "Seoul–Tokyo" hour)

Speaker: J.Ignacio Tello (National University of Distance Education)

Title: On a chemotaxis system with gradient dependent chemotactic coeffcient

Abstract

In the talk, a parabolic elliptic system with chemotactic term is analized. The system is studied for linear diffusion and chemotactic nonlinearity given by the nonlinear term

$$-div(\chi u|\nabla v|^{p-2}\nabla v)$$

in bounded domains $\Omega \in I\!R^N$ for $p \in (1,2)$. If p satisfies

$$\begin{cases} p \in (1,\infty), & \text{if } N = 1, \\ p \in \left(1, \frac{N}{N-1}\right), & \text{if } N \geq 2, \end{cases}$$

we get $L^\infty(\Omega)$ uniform estimates. The supercritical case

$$\frac{N}{N-1} < p < 2, \quad \text{for } N > 2$$

presents blow up of solutions in the N-dimensional unit ball under suitable assumptions in the initial data for χ large enough. The proof of blow up is based on a comparison method.

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