

PhD Seminar, May 21st 2021

Title: Some Chemotaxis PDE models and its approximation.

Author: F. Guill'en-Gonz'alez, EDAN and IMUS, Univ. Sevilla.

Abstract: PDE chemotaxis arises for modeling interactions between cell density and chemical concentration, where in particular cells moves towards high chemical concentration in the attraction case (or the contrary in the repulsion case).

These chemotaxis models are nonlinear parabolic PDE systems with some particular properties, as conservation of cells, positivity of cells and chemical signals, the existence of a dissipative energy functional.

In this talk, we will describe some fully discrete Finite Element numerical schemes preserving (at least in an approximate form) all previous properties.

The results presented in this talk have been obtained with some collaborators: M.A. Rodríguez-Bellido (Universidad de Sevilla, Spain), G. Tierra (North Texas University, USA) and D.A. Rueda Gómez (Universidad Industrial de Santander, Colombia).