Finite difference analysis and numerical simulation of a light-triggered drug delivery model

J.A. Ferreira[(1)], H.P. Gómez[(1)], and L. Pinto[(1)],

[1] University of Coimbra, CMUC, Department of Mathematics, Coimbra, Portugal

In the field of anti-cancer therapy, light-triggered drug delivery technique has been investigated. This technique allows to reduce the side effects that conventional drug-delivery methods present. The process relies on smart materials that carry the drug to the target site and release it in response to an external light stimulus.

In this talk we will addressed some important features of the mentioned technique and we will present a system of partial differential equations to model the technique as well as some simulations of the mathematical model using a fully discrete finite difference method.

Numerical results on superconvergence in a discrete norm will be mentioned.