



UC|UP MATH PhD Program

Research Seminar Program UC|UP Joint PhD Program in Mathematics

Date and Time. December 17, 2015 - 14h30

Place. Room 5.5, Department of Mathematics, University of Coimbra

Speaker. Jahed Naghipoor ¹

Title. Tuning polymeric and drug properties in a drug-eluting stent: a numerical study

Abstract. In recent years, mathematical modeling of cardiovascular drug delivery systems has become an effective tool to gain deeper insights in the cardiovascular diseases like atherosclerosis. In the case of the coronary biodegradable stent, it leads to a deeper understanding of drug release mechanisms from polymeric stent into the arterial wall. In this talk, a two-dimensional coupled nonlinear non-Fickian model for drug release from a biodegradable drug-eluting stent into the arterial wall is presented. The influence of porosity and degradation of the polymer as well as the dissolution rate of the drug are analyzed. Numerical simulations that illustrate the kind of dependence of drug profiles on these properties are included.

¹Jahed Naghipoor is a Post-doctoral fellow at Institute of Structural Mechanics (ISM), Bauhaus-Universitt Weimar, Germany and working in the area of "Numerical Analysis".