

# Modeling electromagnetic wave's propagation in human eye's Structure

Sílvia Barbeiro  
University of Coimbra  
E-mail:silvia@mat.uc.pt

## Abstract

In this talk we will discuss the a mathematical model that describes the electromagnetic wave's propagation through the eye's structures in order to create a virtual OCT scan. Our model is based on time-dependent Maxwell's equations, that we deduce in the integral form. Maxwell's equations can also be cast in the differential form which we consider for the numerical discretization. We focus on deriving stability and convergent estimates a leap-frog type discontinuous Galerkin method. In the model we consider anisotropic permittivity tensors which arise naturally in our application of interest. We illustrate the performance of the method with some numerical experiments.