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DK Seminar

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Vienna University of Technology,
Freihaus, green area, 4th floor, 101C

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Numerical solution of time-dependent Maxwells equations for modeling light scattering in human eyes structures

This talk is a report on recent work with Adrito Arajo and Maryam Khaksar concerning the numerical discretization of the time-dependent Maxwells equations using a leap-frog type discontinuous Galerkin method. We focus on deriving stability and convergent estimates of fully discrete schemes. We consider anisotropic permittivity tensors, which arise naturally in our application of interest. An important aspect of discussion is the implementation of the boundary conditions. We present some numerical examples to illustrate the theoretical results and also in the context of modeling scattered electromagnetic waves propagation through human eyes structures. Finally, we also briefly discuss the multi-scale nature of the problem.