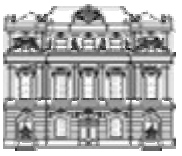

ÖAW - RICAM

Johann Radon Institute for Computational and Applied Mathematics

der

Österreichischen Akademie der Wissenschaften

Group Seminar

Group: Computational Methods for Direct Field Problems

Ronan Perrussel

Electrical Engineering Center of Lyon, FRANCE

"Compatible coarse nodal and edge elements through energy functionals"

Our aim is to define an algebraic multilevel method for solving Maxwell's equations discretized by edge elements. The first principles have been presented by Reitzinger and Schöberl to solve this class of problems; some improvements have also been introduced by Bochev et al. We propose another approach coming from the construction of coarse nodal elements by using a minimisation problem based on an energy norm; this idea has been proposed by Wan, Chan and Smith. We will review this technique in the nodal element case and we will extend this method to the construction of coupled coarse nodal and edge elements; the important details of the approach will be explained and numerical results on structured and unstructured meshes, in two and three dimensions, will be presented.

Montag, 11. April 2005, 15:30

Hochschulfondsgebäude, Raumnr. 136