

Analyse numérique

Mercredi 16 juin 2010 – Salle MAA112 – 16.15 h.

Dr. Andrea **BONITO** (Texas A&M University) donnera un séminaire¹ intitulé :

***“Numerical Approximation of the Time-Harmonic Maxwell
System using H^1 -conforming finite elements”***

Abstract

We describe a new approximation technique for the Maxwell eigenvalue problem using $\mathbf{H}^1$ -conforming finite elements.

We start our discussion by recalling relevant properties of the Maxwell operator emphasizing the difficulties for H^1 -conforming finite elements to deliver a correct spectral approximation. In fact, they were believed not to be able to provide such approximation.

The key idea consists of controlling the divergence of the electric field in a fractional Sobolev space with differentiability index between $-1/2$ and -1 . We examine first a non-implementable scheme to explain the essence of the method. We next consider the extension to the actual method used in practice, and finally conclude with numerical experiments.

This is joint work with J.-L. Guermond.

Lausanne, le 31 mai 2010/JR/aa

1. Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet à l'adresse <http://www.epfl.ch/cgi-bin/memento/memento>.