Department of Mathematics

University of Houston

Amundson Lecture Series

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The periodic table of finite elements

Tuesday, March 5, 2013
4:00 PM- 5:00 PM
CBB 110

Abstract:

Finite element methodology, reinforced by deep mathematical analysis, provides one of the most important and powerful toolsets for numerical simulation. Over the past forty years a bewildering variety of different finite element spaces have been invented to meet the demands of many different problems. The relationship between these finite elements has often not been clear, and the techniques developed to analyze them can seem like a collection of ad hoc tricks. The finite element exterior calculus, developed over the last decade, has elucidated the requirements for stable finite element methods for a large class of problems, clarifying and unifying this zoo of methods, and enabling the development of new finite elements suited to previously intractable problems. In this talk, we will discuss the big picture that emerges, providing a sort of periodic table of finite element methods.

This seminar is easily accessible to persons with disabilities. For more information or for assistance, please contact the Mathematics Department at 743-3500.