SCHOOL OF NATURAL SCIENCES

SEMINAR SERIES

Wave propagation in inhomogeneous media: An introduction to Generalized Plane Waves

Trefftz methods rely, in broad terms, on the idea of approximating solutions to Partial Differential Equation (PDEs) using basis functions which are exact solutions of the PDE, making explicit use of information about the ambient medium. But wave propagation problems in inhomogeneous media is modeled by PDEs with variable coefficients, and in general no exact solutions are available. Generalized Plane Waves (GPWs) are functions that have been introduced, in the case of the Helmholtz equation with variable coefficients, to address this problem: they are not exact solutions to the PDE but are instead constructed locally as high order approximate solutions. We will discuss the origin, the construction, and the properties of GPWs. The construction process introduces a consistency error, requiring a specific analysis.

Monday, 1/27/2020	**3:00pm - 4:30pm**	**COB 1 Rm. 267**	For more information, contact: Professor Mayya Tokman at mtokman@ucmerced.edu

Lise-Marie Imbert-Gérard

Department of Mathematics, CSCAMM, IPST
University of Maryland

I studied Mathematics at Ecole Normale Supérieure de Cachan. I then earned a PhD from Université Pierre et Marie Curie (UPMC - Paris 6), where I studied with Bruno Despres at the Laboratoire Jacques-Louis Lions. Before joining the University of Maryland as as Assistant Professor, I spent my postdoctoral years at the Courant Institute (NYU).