

# EECE Department Seminar

Friday, September 29, 2017

11:00am

Brauer Hall, Room 12

## Mathematical Problems in Reaction-Diffusion Systems

### Renato Feres, Professor

Department of Mathematics



**Professor of Mathematics, Renato Feres'** research focuses on differential geometry and dynamical systems. His recent courses include "Stochastic Processes" and Introduction to Lebesgue Integration". Other research interests include differential geometry and Mathematical Physics.

#### ABSTRACT

The present talk will address some general theoretical results concerning reaction-diffusion systems. These results answer mathematical problems that were inspired by the experimental technique known as Temporal Analysis of Products (TAP) introduced by J.T. Gleaves in 1988 and subsequently greatly developed by him, G. Yablonsky, and their collaborators. This is joint work with G. Yablonsky, M. Wallace, and T. Chumley.

Topics of discussion are:

1. the stochastic foundation of the Knudsen cosine law.
2. extracting surface structure information from exit pulse response experiment.
3. determination of catalyst productivity and optimal catalyst configuration for reaction-diffusion systems.