

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING
SEMINAR

*PDE Models of Infectious Disease: Validation Against Data,
Time-Delay Formulations, Data-Driven Methods, and Future
Directions*

Alex Viguerie
Gran Sasso Science Institute

Abstract: In the wake of the COVID-19 epidemic, there has been surge in the interest of mathematical modeling of infectious disease. Most of these models are based on the classical SIR framework and follow a compartmental-type structure. While the majority of such models are based on systems of ordinary differential equations (ODEs), there have been several recent works using partial differential equation (PDE) formulations, in order to describe epidemic spread across both space and time. This talk will focus on the application of such PDE models, and discuss different PDE formulations, the advantages and disadvantages, and assess their performance against measured data. Emphasis is placed on the incorporation of time-delay formulations and the application of modern data-driven techniques to further inform and enhance the performance of such models.

Friday, October 8, 2021, 12:30 pm
Mathematics and Science Center: MSC W201

MATHEMATICS
EMORY UNIVERSITY