

CODES
SEMINAR

*Mathematical Modeling and Numerical Simulation of the Heart
Function Speaker's Name: Alfio Quarteroni*

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Abstract: Computational medicine is a powerful driver of mathematical innovation, generating complex problems and numerical methods that enhance our understanding of human physiology. It also provides invaluable support to physicians, enabling more accurate diagnoses, optimized therapies, and patient-specific surgical interventions. However, the challenges posed by the multiphysics and multiscale nature of these problems—combined with data uncertainty, inter- and intra-patient variability, and the curse of dimensionality—are significant. In this presentation, we will demonstrate how the iHEART simulator—a comprehensive model of human heart function, combining physics-based computational modeling with data-driven algorithms—enables us to overcome these challenges and achieve these objectives.

Friday, April 18, 2025, 3:30 pm
Oxford Building Room 311

MATHEMATICS
EMORY UNIVERSITY