



Department of Mathematical and Statistical Sciences

## SPECIAL COLLOQUIUM ANNOUNCEMENT

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### *Electrodifusion Mediated Maintenance of the Gastric Mucus Layer*

**Dr. Owen Lewis**  
Department of Mathematics  
Florida State University

**1:00 p.m., Friday, January 31, 2020**

#### **Abstract**

Diffusion of charged particles, or electrodiffusion, plays an important role in many physiological systems including the human stomach. The gastric mucus layer is widely recognized to serve a protective function, shielding your stomach wall from the extreme acidity and digestive enzymes present in the stomach. However, there is still much debate regarding the control of electrodiffusive transport through the mucus layer. In this talk, I will discuss a mathematical description of electrodiffusion within a two-phase gel model of gastric mucus and the challenges associated with its analysis and numerical simulation. This model is used to investigate physiological hypotheses regarding gastric layer maintenance that are beyond current experimental techniques.

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1313 W. Wisconsin Avenue, Cudahy Hall, Room 401, Milwaukee, WI 53201-1881  
For further information <https://www.marquette.edu/mathematical-and-statistical-sciences/colloquium.php>  
or contact Dr. Sarah Hamilton at #414-288-6343, [sarah.hamilton@marquette.edu](mailto:sarah.hamilton@marquette.edu)

Post-Colloquium refreshments served in Room 342 AT 2:00 p.m.