

CCSU  
DEPARTMENT OF MATHEMATICAL SCIENCES

# COLLOQUIUM

Friday, November 10  
3:15 – 4:15 PM

## **BATTLE OF THE SMARTPHONES: WILL ONE DRIVE THE OTHER TO EXTINCTION**

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### **ONLINE PRESENTATION**

**Abstract:** The Bass Model is a first-order nonlinear differential equation that models the diffusion of a product or an innovation using parameters that capture the markets' spontaneous innovation and imitation. Created in 1979 by Frank Bass, this model is still currently being used in sales forecasting and in making management decisions on pricing and advertising. In this talk, we create a two-dimensional system of differential equations with the Bass Model in the growth component of the model and with interaction terms that capture the competition between two products. The resulting system is then used to analyze the interaction between the top two smartphone brands using published data. In particular, we would like to know if the mathematical ecology result called Competitive Exclusion Principle applies to the resulting system. The Competitive Exclusion Principle predicts that there is a state wherein one product may drive the competition to extinction.

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