

# Forecasting Epidemics

Combining Networks and Partial Differential Equations to Improve Predictions



## Science and Mathematics Colloquium Series

### Presentation by Haiyan Wang

Professor, School of Mathematical and Natural Sciences  
ASU's New College of Interdisciplinary Arts & Sciences

**Wednesday, March 21, 2018**  
**3 – 4 p.m.**

**Student Union, Cooley Ballroom C**  
**ASU Polytechnic campus**

The ever-increasing availability of geospatial data opens the possibility to use spatio-temporal models to more accurately predict patterns of movement and trends in human activities, epidemic spread, environmental changes and many other natural phenomena. Professor Wang will discuss an integrated framework for early detection of epidemic outbreaks based on real-time geo-tagged data in Twitter. The approach combines network theory, data mining and partial differential equation models to describe and predict patterns of epidemic spread at regional levels. He will also discuss free boundary value problems and bifurcation problems arising from these applications.

Faculty and practitioners discuss their current research and field projects in the Science and Mathematics Colloquium Series, held throughout the academic year at ASU's Polytechnic campus. All seminars are free and open to the public.

Haiyan Wang's research interests are in applied mathematics, differential equations, mathematical biology, online social networks and big data.

Dr. Wang joined ASU's West campus as an assistant professor in 2005. He earned a doctorate in mathematics and a master's in computer science simultaneously at Michigan State University. Wang also holds a master's in applied mathematics, from Ocean University of China.

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