West Virginia University

Department of Mathematics
Eberly College of Arts and Sciences

Biomathematics Colloquium

IN SILICO MODEL-BASED INFERENCE:

A CONTEMPORARY APPROACH FOR HYPOTHESIS TESTING IN CELL SIGNALING RESEARCH

Prof. David Klinke

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Discovery using the scientific method is a structured activity where we formulate hypotheses (i.e., models) based upon our collective knowledge of a signaling system, design experiments and acquire data, and perform inference tests to interpret the data in light of our model. This iterative process either improves our confidence in a model or suggests that we revisit our prior knowledge to develop a new model. Advances in technology impact how we use prior knowledge and data to formulate models of cellular signaling and how we observe cellular behavior. However, our approach for model-based inference has remained largely unchanged since Fisher, Neyman and Pearson developed the ideas in the mid-1900's that gave rise to what we now know as classical statistical hypothesis (model) testing. In this talk, I will summarize conventional methods for model-based inference and suggest an alternative approach to improve discovery in cell signaling research that leverage advances in technology. This alternative approach will be illustrated using our recent study of the Interleukin-12 signaling pathway in immune cells.

4:00 PM, Thursday, October 27, in 315 Armstrong Hall

PLEASE NOTE SPECIAL TIME!

Refreshments and fellowship at 3:45

Everyone is welcome, especially students and faculty with interest in Biology and the Quantitative Sciences