

## **Modeling Signal Transduction: How Quantitative Can One Get?**

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The holy grail of biochemical network modeling is to be able to predict the outcome of a genetic or pharmacological perturbation. Yet our ability to quantitatively understand a biological network or pathway remains largely untested outside a handful of the simplest prokaryotic systems. Fly phototransduction allows an interesting case study. It involves a moderately complex G-protein coupled signaling cascade with a readily measurable phenotype. Thanks to the power of *Drosophila* genetics the molecular components of fly phototransduction are now reasonably well understood. Yet understanding its system level behavior remains an open problem. The lecture will present a quantitative model of fly phototransduction and discuss the challenges that are encountered when the theory and experiment can confront each other at close range.