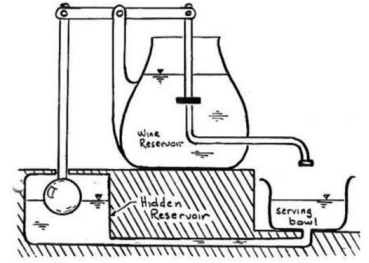


# Pharmacometrics + Applied Math = Better QSP

3:00-8:00pm, 6 February 2017, 35 Lansdowne Street, Cambridge MA



## Background

There is rich history of dynamical systems and control theory that provides a conceptual framework for questions arising in Quantitative Systems Pharmacology, for example: Does my tumor/immune interaction model have bi-stable behavior? What is a minimal model structure that would give me oscillatory behavior, e.g. circadian rhythms? Are my model parameters estimable from my data set? This short course is intended to familiarize the QSP/pharmacometrics community with some techniques to address these questions and point to sources for deeper learning and implementation.

## Goals of symposium

- Identify recurring problems in QSP/pharmacometrics in need of applied mathematics techniques
- Provide an 'atlas' of simple systems model structures (cascades, feedback/feedforward loops, etc.) and their potential emergent behaviors (oscillations, switching, adaptation, etc.)
- Teach via QSP-relevant examples:
  - Model reduction via separation of time scales
  - Analysis of simple systems models: phase planes, nullclines, stable points, bifurcations
  - Identifiability of model parameters from a given data set
- Provide a list of software packages designed to facilitate implementation of the above concepts

## Agenda

<b>3:00 PM</b>		<b>Participants sign in &amp; network</b>
<b>3:30 PM</b>	<b>Kevin Dykstra</b> , QPharmetra <b>CJ Musante</b> , Pfizer	Opening remarks & motivating questions
<b>3:50 PM</b>	<b>Dean Bottino</b> , Takeda	Phase planes, nullclines, bifurcations: concepts + software
<b>4:45 PM</b>		Break
<b>5:00 PM</b>	<b>Eduardo Sontag</b> , Rutgers	Dynamical systems theory & intro to identifiability
<b>6:00 PM</b>	<b>Andy Stein</b> , Novartis <b>Andreas Raue</b> , Merrimack	Identifiability: concepts + software
<b>7:00 PM</b>		Eat pizza, network & leave by 8:00

## Other information

- [Registration](#) is required for all attendees (\$20, free for students).
- Pizza dinner after the event is included for all registered guests.
- Up-to-date meeting information: <https://takeda.box.com/v/ISOP-NE-QSP-math>