

Workshop on Hybrid Systems Biology

45th IEEE Conference on Decision and Control
Tuesday, December 12, 2006
San Diego, CA, U.S.A.

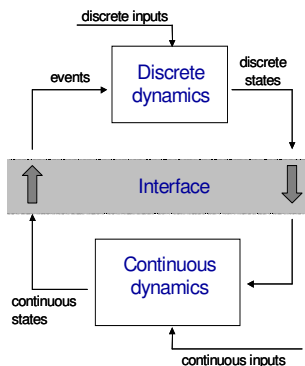
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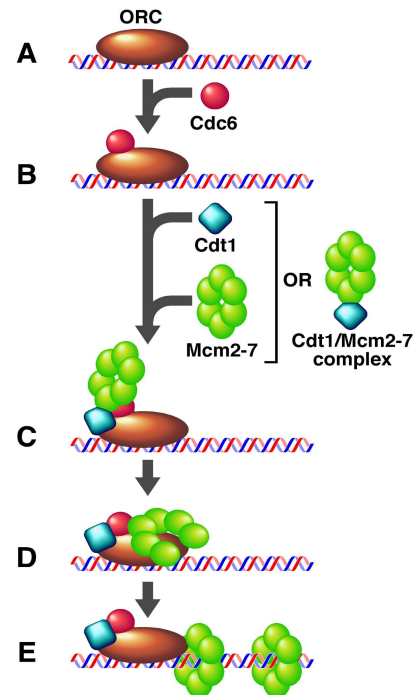
In association with the European Commission project HYGEIA FP6-NEST-4995 www.hygeiaweb.gr



Scope: Mathematical modeling of biochemical networks has attracted considerable attention in recent years and is recognized as one of the major challenges facing the biology research community today. The models available in the literature can be classified into two families: models with purely continuous dynamics (e.g. models for the evolution of concentrations of proteins in terms of ordinary differential equations) and models with purely discrete dynamics (e.g. graph models of the interdependencies in a regulatory network, Boolean networks). The recognition that hybrid dynamics can play an important role in biochemical systems has led a number of researchers to investigate how methods developed for hybrid systems in other areas (such as embedded systems and air traffic management) can be extended to biological systems. In this workshop we will highlight recent developments in this area and outline the exciting research directions to which they give rise.

Workshop Program: The workshop will cover one full day.

- G. Batt** (Boston University): "Validation of genetic regulatory network models"
- C. Belta** (Boston University): "Automatic tuning of synthetic gene networks"
- G. Ferrari-Trecate** (University of Pavia): "Data-driven hybrid modeling of genetic regulatory networks"
- J. Hespanha** (U.C. Santa Barbara): "Stochastic hybrid models of biochemical processes"
- J. Lygeros** (ETH, Zurich): "An overview of the use of hybrid models in biochemical networks"
- Z. Lygerou** (University of Patras): "Stochastic hybrid models for DNA replication"
- E. Sontag, M. Chavez** (Rutgers University): "Piecewise linear systems and asynchronous methods for robustness analysis of Boolean models"
- C. Tomlin** (U.C. Berkeley & Stanford University): "Using hybrid system analysis to help decode protein regulatory networks"



Workshop Proceedings: Copies of all the presentations and related publications will be made available to the workshop participants on a CD-ROM.

Registration and Conference Information

<http://www.ieeecss.org/CAB/conferences/cdc2006/>