International Workshop on Hybrid Systems
Modeling, Simulation and Optimization
May 14-16, 2008
Koç University, Istanbul

Wednesday, May 14

11:00 - 13:00 Registration

13:00 - 13:10 Welcome and Opening Remarks

    − Yaman Arkun, Provost, Koç University

13:10 - 14:30 Session W1

    − "Iterative Relaxation Abstraction for Verification and Design of Hybrid Systems", *Bruce H. Krogh*, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA

    − "An Introduction of Hybrid Systems with Memory", *H. Oktem*, A. Hayfavi, N. Caliskan, N. Gokgoz, Institute of Applied Mathematics, METU, Ankara, Turkey

14:30 - 14:45 Coffee Break

14:45 - 15:45 Session W2

    − "Reformulations, relaxations and cutting planes for generalized disjunctive programming", Nicholas Sawaya, *Ignacio E. Grossmann*, Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA

15:45 - 16:00 Coffee Break

16:00-17:30 Session W3

    − "Multi-Dimensional Particle Swarm Optimization", *Serkan Kiranyaz*[1], Turker Ince[2], Alper Yildirim[3], Moncef Gabbouj[1], [1]Tampere University of Technology, Tampere, Finland, [2]Izmir Economy University, Izmir, Turkey, [3]TUBITAK, Ankara, Turkey

    − "Modeling Hybrid Systems using Constraint Logic Programming", *Ammar Mohammed*, Computer Science Department, Koblenz-Landau University, Universitaetsstrasse 1, 56070 Koblenz, Germany

    − "Reformulations and Numerical Methods for Control Problems with Integer-Valued Functions", *Sebastian Sager*, Christian Kirches, Hans Georg Bock, Interdisciplinary Center for Scientific Computing (IWR), University of Heidelberg, Germany

Thursday, May 15

09:30 - 11:00 Session T1

- "Time-stepping methods for large scale differential variational inequalities (DVI) in nonsmooth dynamics", *Mihai Anitescu*, Mathematics and Computer Science Division, Argonne National Laboratory, USA

- "Time-optimal Control of Automobile Test Drives with Gear Shifts", *Christian Kirches*, Sebastian Sager, Hans Georg Bock, Interdisciplinary Center for Scientific Computing (IWR), University of Heidelberg, Germany

11:00 - 11:15 Coffee Break

11:15-12:45 Session T2

- "Analysis and numerical solution of hybrid differential algebraic systems", *Volker Mehrmann*, Institut für Mathematik, Technische Universität Berlin, Germany

- "A Switching Control Approach to Stabilization of Parameter Varying Time Delay Systems", Peng Yan[1], *Hitay Ozbay*[2], [1]Enterprise Design Engineering, Seagate Technology, 1280 Disc Drive, Shakopee, MN 55379, USA, [2]Department of Electrical and Electronics Engineering, Bilkent University, Ankara, 06800, Turkey

12:45-13:30 Lunch Break

13:30 - 15:30 Session T3

- "MPEC Strategies for Optimization of Chemical Process Dynamics", B. T. Baumrucker, *Lorenz T. Biegler*, Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA

- "Dynamic Modeling and Optimization of Circadian Clock", *Ugur Kaplan*, I.Halil Kavakli, Metin Turkay, College of Engineering, Koc University, Istanbul, Turkey

- "Simulation of Mating Behavior in Flies", Mehmet Kayım, *Aykut Kence*, Department of Biology, Middle East Technical University, Ankara, Turkey

15:30 - 15:45 Coffee Break

15:45 - 17:15 Session T4

- "Semismooth Hybrid Automata", *Paul I. Barton*, Mehmet Yunt, Chemical Engineering Department, Massachusetts Institute of Technology, Cambridge, MA, USA

– "A Model of Angiogenesis by Hybrid Systems with Delay on the Piecewise Constant part", *Bulent Karasozen*, Hakan Oktem, Mustafa Kahraman, Department of Mathematics and Institute of Applied Mathematics, METU, Ankara, Turkey

19:00-23:00 Conference Dinner

Friday, May 16

09:30 - 11:00 Session F1

– "Constrained and Distributed Hybrid Control", *Francesco Borrelli,* Department of Mechanical Engineering, University of California at Berkeley, USA

– "Fuzzy L1 Norm Strategy for Model Based Control", *Zehra ZEYBEK,* Ankara University, Department of Chemical Engineering, 06100 Tandoğan, Ankara, Turkey

11:00 - 11:15 Coffee Break

11:15-12:15 Session F2

– "Modeling and Optimal Control for Freeway Onramp Metering Based on the Piecewise Affine System", *Liguo Zhang*, School of Electronic and Control Engineering, Beijing University of Technology, Beijing, China

– "A Mode-Based Hybrid Controller Design for Agile Maneuvering Unmanned F-16 Aircraft", Nazim Kemal Ure, *Gokhan Inalhan*, Faculty of Aeronautics and Astronautics, Istanbul Technical University, Istanbul, Turkey

12:15-13:00 Lunch Break

13:00 - 14:30 Session F3

– "Differential Variational Inequalities and friends", David *Stewart,* Department of Mathematics, University of Iowa, IA, USA

– "Use of Hybrid System Modeling Technique for Robot-Assisted Rehabilitation Systems", *Duygun Erol*, Department of Electrical and Electronics Engineering, Yeditepe University, Kayisdagi, Istanbul, Turkey

14:30 - 15:00 Concluding Remarks, Farewell

Sponsors

- TÜBİTAK [TÜBİTAK](#)

- [Koç University](#)

- [Institute of Applied Mathematics](#), [METU](#)

- [Carnegie Mellon University](#), [Department of Chemical Engineering](#)

- [KUMPEM](#)
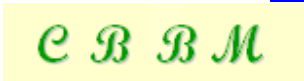
- [The European Office of Aerospace Research & Development (EOARD)](#)
  We wish to thank the following for their contribution to the success of this conference: European Office of Aerospace Research and Development, Air Force Office of Scientific Research, United States Air Force Research Laboratory (www.london.af.mil).

- [IBM Corporation](#)

- [EURO-CBBM: http://euro-cbbm.ku.edu.tr/EURO Working Group on Operational Research in Computational Biology, Bioinformatics and Medicine](#)

- [EUROPT: EURO Working Group on Continuous Optimization](#)