In Memoriam

Christodoulos (Chris) A. Floudas
1959-2016

Huge loss to Process Systems Engineering Community
Diploma of Chemical Engineering, 
Aristotle University of Thessaloniki (1982)

Joined Carnegie Mellon in September 1982

Obtained Ph.D. degree in 1986 (advisor Ignacio Grossmann)

Publications from Ph.D. work


Chris was a pioneer of superstructure optimization
Professor Christodoulos A. Floudas

Research Activities:
- Product and Process Design, Synthesis, and Discovery
- Product and Process Operations: Planning and Scheduling under Uncertainty
- Discrete-Continuous Nonlinear Optimization
- Deterministic Global Optimization
- Bioinformatics and Computational Biology

Key Contributions in:
- Theory and algorithms in deterministic global optimization, derivative-free optimization
- Optimization under uncertainty
- Planning and scheduling of complex systems
- Process synthesis and global optimization for hybrid energy systems for fuels and chemicals
- Protein structure prediction, refinement, and de novo protein design via deterministic global optimization
The basic idea of the proposed formulation is that it decouples the task events \((i)\) from the unit events \((j)\). This is achieved by the consideration of different variables to represent the task events (i.e., the beginning of the task), denoted as \(wv(i,n)\), and the unit events (i.e., the beginning of unit utilization), denoted as \(yv(j,n)\), as shown in Figure 3. If task event \(i\) starts at event point \(n\), then \(wv(i,n) = 1\); otherwise, it is zero. If unit event \(j\) takes place at event point \(n\), then \(yv(j,n) = 1\); otherwise, it is zero."

“This results in fewer binary variables and small integrality gaps.”
Process Scheduling – other publications for Chris’ lab

313 citations – Great Review of the scheduling work

Ierapetritou M.G., and C.A. Floudas. Effective Continuous-Time Formulation for Short-Term Scheduling: II. Continuous and semi-continuous processes
170 citations – Extension of the original work to cover continuous processes

157 citations – Pioneer work in the area of robust scheduling

109 citations – Smart way to incorporate realistic storage constraints

… and many more

Chris was a pioneer of scheduling modeling and optimization
Global Optimization – Theoretical & Methodological contributions


520 citations – Major advance for global optimization!

128 citations – Best Paper of 2013, Journal of Global Optimization!

114 citations – Publicly available

9 citations – Uses the ARGONAUT system

And many more …
Global Optimization – Application Domains


Chris was a pioneer of global optimization
Energy & Materials


105 citations – Online engine for analysis and discovery of microporous materials!


91 citations – nationwide energy supply chain network design to drive policy decisions!


And many more …

Chris was a pioneer of applying optimization for energy and materials
Computational Biology


Young, DiMaggio, Plazas-Mayorca, Baliban, Floudas, & Garcia, High throughput characterization of combinatorial histone codes. Mol Cell Proteo, 8(10):2266-2284, 2009. 211 citations – real-time analysis of mass spec signals to characterize histone codes!


And many more …

Chris was a pioneer of applying optimization for biology
Academic Impact in Numbers

4 Generations of Floudas Academic Tree

- Number of Graduate Students: 186
- Number of Academics: 20

Academic Impact in Numbers

- 20 post-doctoral associates
- 13 books, and monographs
- 32 book chapters
- More than 40 patents
- More than 335 journal articles

2014-2016
Professor Christodoulos A. Floudas

Final Appointments
Director, Texas A&M Energy Institute
Erle Nye '59 Chair Professor for Engineering Excellence
Artie McFerrin Department of Chemical Engineering
Texas A&M University
Stephen C. Macaleer '63 Professor in Engineering and Applied Science, Emeritus
Professor of Chemical and Biological Engineering, Emeritus
Princeton University

Recognitions and Honors
- National Academy of Inventors, 2015
- Academy of Athens, Corresponding Member, 2015
- P.V. Danckwerts Memorial Lecture, 2015
- Thomson Reuters Highly Cited Researcher, 2015 (for 2003-2013)
- Constantin Caratheodory Prize, 2015
- Thomson Reuters Highly Cited Researcher, 2014 (for 2002-2012)
- TIAS Fellow and Eminent Scholar, 2013-14
- National Award and HELORS Gold Medal, 2013
- AIChE Fellow, 2013
- National Academy of Engineering, 2011
- Graduate Mentoring Award, Princeton University, 2007
- AIChE Computing in Chemical Engineering Award, 2006
- AIChE Andreas Acrivos Award for Professional Progress in Chemical Engineering, 2001

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- Google Scholar: 84
- Web of Science: 62
- Citations: 12,324
- Journal Articles: >335