

All About CACHE

Joe Golab, INEOS Technologies
Tom Edgar, UT-Austin

CACHE Corporation



About CACHE

- Founded in 1969
- Mission -- NEW
 - *CACHE (Computer Aids for Chemical Engineering) promotes the development and distribution of technology based materials and software in chemical engineering education through projects applying computational chemical engineering, sponsoring conferences, recognizing outstanding contributions, and providing leadership in chemical engineering education.*
- Current Board of Trustees – 28 members
 - *21 Academic; 7 Industrial or Government*

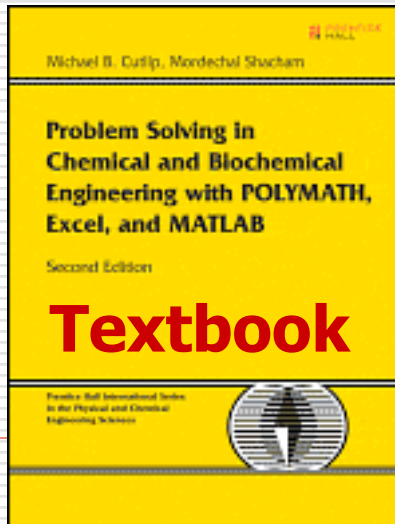
Wayne	Bequette	Rensselaer Polytechnic Institute	Marianthi	Ierapetritou	Rutgers, The State Univ. of New Jersey
Richard	Braatz	MIT	Jason	Keith	Mississippi State University
Chau-Chyun	Chen	Texas Tech	David	Kofke	State University of New York at Buffalo
Peter	Cummings	Vanderbilt University	Concetta	La Marca	DuPont Engg. Research & Technology
Michael	Cutlip	University of Connecticut (emeritus)	Ed	Maginn	University of Notre Dame
James	Davis	University of California	Clare	McCabe	Vanderbilt University
Francis	Doyle	University of California	Charles	Petty	Michigan State University
Thomas	Edgar	University of Texas	Gintaras	Reklaitis	Purdue University
Mahmoud	El-Halwagi	Texas A&M University	Brigitte	Rosendall	Bechtel National, Inc.
H. Scott	Fogler	University of Michigan	Warren	Seider	University of Pennsylvania
Rafiqul	Gani	Technical University of Denmark	Jeffrey	Siirola	Eastman Chemical Company (retired)
Joseph	Golab	INEOS Technologies, Nitriles R&D	Gavin	Towler	UOP
Michael	Henson	University of Massachusetts Amherst	Phillip	Westmoreland	North Carolina State University
Robert	Hesketh	Rowan University	Stephen	Zitney	National Energy Technology Laboratory

□ What does CACHE do?

Software: Polymath

- Numerical analysis software specifically for educational use
 - Linear, nonlinear equations, differential equations, data analysis and regression
 - Integration of selected physical property data from DIPPR database (AIChE)
 - **PolyMathLite – Ready for mobile devices**
- Packaged with several leading ChE textbooks
- Discounted licenses for CACHE affiliates
 - Licensed by almost 120 departments worldwide

Authors:
Mike Cutlip
Mordechai Shacham
Mike Elly



www.polymath-software.com

NEW AFFORDABLE PURCHASE OPTIONS for Educational Version (Students only)

POLYMATH 6.1 - for Windows XP, Vista and Win7

POLYMATH is a proven computational system that has been specifically created for educational or professional use. The various POLYMATH programs allow the user to apply effective numerical analysis techniques during interactive problem solving on personal computers. Results are presented graphically for easy understanding and for incorporation into papers and reports. Engineers, mathematicians, scientists, students, or anyone with a need to solve problems will appreciate the efficiency and speed of problem solution.

POLYMATH utilizes a color-coded full-screen editor. All displays have been optimized for user efficiency. Also provided with Polymath 6.1 is the UNIQUE capability to automatically export any POLYMATH problem to Excel with a single keypress. Thus problems can be solved completely in Polymath or exported to Excel™ for solution. A POLYMATH ODE_Solver Add-In is included for solving ordinary differential equations in Excel. Automatic export to Excel includes all intrinsic functions and logical variables. Ordered equations can also be provided to assist with optional Matlab™ solutions of POLYMATH problems.

The **Professional Version** problem-solving capabilities include:

- Linear Equations - up to 264 simultaneous equations
- Nonlinear Equations - up to 300 simultaneous nonlinear and 300 additional explicit algebraic equations
- Differential Equations - up to 300 simultaneous ordinary differential and 300 additional explicit algebraic equations
- Data analysis and Regression - up to 200 variables with up to 1000 data points for each, with capabilities for linear, multiple linear, and nonlinear regressions with extensive statistics plus polynomial and spline fitting with interpolation and graphing capabilities

The **Educational Version** has more limited problem sizes that can be solved and is only available for students. [Details](#)

[Overview of Polymath 6.1](#)

POLYMATH 6.1 Trial/Purchase Options

POLYMATH Software
[home | overview | order | manuals | support | demos]

Student AIChE/CACHE Mobile Device APP National Competition



- Undergraduate student teams will create an APP for a mobile device that is useful for an AIChE member. The APP must run on a mobile device such as a smartphone. Student teams can consist of any discipline, but at least half of the team must be members of AIChE.
- Two Awards
 - \$500 from CACHE for the first place winner of the best mobile device APP
 - \$500 from a corporate sponsor for the best APP that addresses safety
- Presentation
 - The competition at the AIChE annual meeting will consist of a poster competition where finalists will be selected to give a short presentation to a general audience at the conference in San Francisco
- **More information:**
 - <http://www.aiche.org/community/awards/mobile-device-app-competition>
 - Email: hesketh@rowan.edu

Conferences

- On average, 1-2 held every year
- Financed by registration fees, federal grants, corporate sponsors
- Recent conferences
 - FOCAPO/CPC
 - FOMMS 2012
 - FOSBE 2012 (Japan)
- FOCAPD 2014

Home Abstracts Contact Email Fellowships FOMMS Medal History Key Dates Photos Schedule Speakers Venue

FOMMS 2012 Foundations for Discovery and Data

Chair: Edward Maginn (Notre Dame)

Co-Chairs: Iija Siepmann (Minnesota) and Kristen Fichthorn (Penn State)

Senior Advisors: Peter Cummings (Vanderbilt), Joe Golab (INEOS), Sharon Glotzer (Michigan), and Clare McCabe

The FOMMS 2012 Conference will be held July 22-26, 2012 at The Resort at The Mountain, nestled in the western highlands of Mt. Hood less than an hour southeast of Portland, Oregon, USA. In addition to outstanding lectures and discussion on a range of topics in molecular modeling and simulation, the conference will include mini-workshops, organized outings, and the FOMMS Medal banquet.

Overview

Access the call for abstracts here: [LINK](#)

FOMMS 2012 is the 5th international conference showcasing applications and theory of computational quantum chemistry, molecular science, and engineering simulation. It is motivated by the continual need for

Search
Search this site:

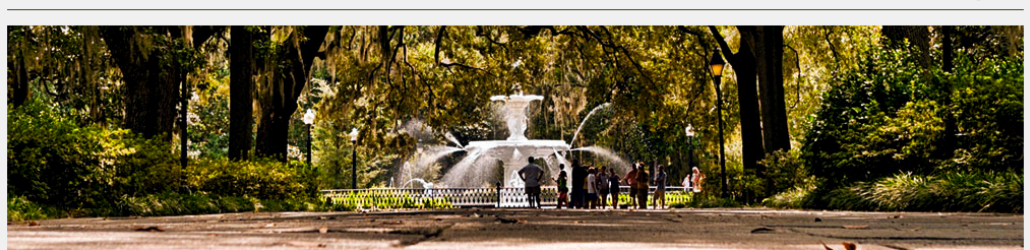
Access the call for abstracts here: [LINK](#)

Graduate student and post-doc fellowships: [LINK](#)

Access a poster that you can print out and post here:

FOCAPO 2012

8 - 11 January 2012
Foundations of Computer-Aided Process Operations
The Westin Savannah Harbor Golf Resort & Spa
Savannah, Georgia USA



FOSBE 2012

TSURUOKA, JAPAN
OCTOBER 21-25

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FOSBE 2012 Home Page

Introduction

Monday, 19 December 2011 03:54 administrator

About FOSBE

We cordially invite you to Foundations of Systems Biology in Engineering (FOSBE) to be held in Tsuruoka, north-west Japan, October 21st-25th, 2012. FOSBE is an international conference that addresses emerging challenges and opportunities in systems biology with a particular emphasis on engineering approaches and applications. The primary objectives of FOSBE are to provide an in-depth review and critical assessment of the current state-of-the-art, to discuss current and future needs of research, education and training, and to identify new directions in systems biology. The overseeing body [Computer Aids in Chemical Engineering](#) (CACHE) was founded in 1969 to promote computational skills in academic, government and industrial chemical engineering and is currently supported by around 140 academic institutes worldwide. FOSBE was originally scheduled for October 2011 we postponed the conference due to the Earthquake and Tsunami in North-East Japan. As Tsuruoka is in North-West Japan the effects of the disaster were minimal.

We hope you can come to Tsuruoka for our exciting conference, experience [Shonai culture](#) and play a part in regenerating the Tōhoku region.

Conference Venue

The Institute for Advanced Biosciences, Keio University, is an academic research institute pioneering the new life science field of "Systems Biology", using both experimental and computational biology. There are several groups working in collaboration, focusing mainly on genome biology and engineering, genome design and synthetic biology, metabolic engineering

EVENT COUNTDOWN

29 17 9 2
Days Hours Minutes Seconds
(FOSBE-2012) abstract submission deadline

In association with:
[Computer Aids in Chemical Engineering](#)

Funds from:
[Yamagata Prefecture](#)
[Tsuruoka City](#)
[Inoue-Zaidan Foundation](#)

SPONSORS

Featured Links:

Agilent Technologies

Nishikawa Keisido

Educational Materials

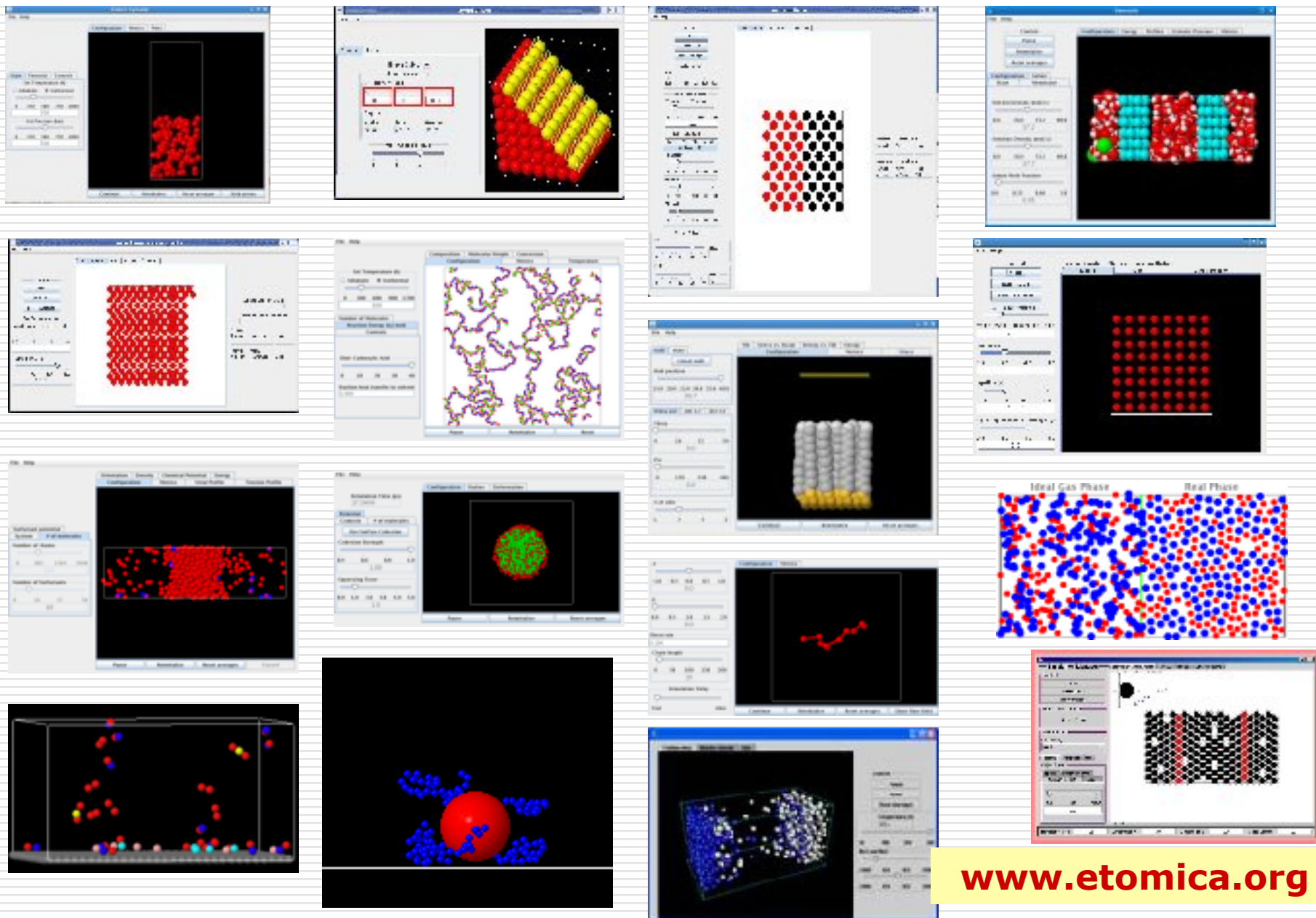
□ Current

- *Chemical engineering process design case studies*
- *Case studies developed for biofuels*
- *Etomica molecular simulation modules*

□ In the works ...

- *AIChE student design contest solutions on the web*
- *Sustainable manufacturing case studies*

Molecular Simulation Modules



Dissemination

- CACHE addresses issues related to the communication of information
 - *Website, newsletters, reports, conference proceedings, and computer programs*
- ASEE Summer School materials
- CACHE News
 - *Latest biannual edition released one month ago – email sent to department chairs*
 - *Please bring new releases to the attention of your faculty*
- CACHE Teaching Resource Center
 - *Guide to teaching design with internet links*
- cachet academic jobs posting site
 - *Academic affiliates can post openings at no charge*
 - *Any faculty candidate can post a profile, at no charge*







Faculty Ads

[Main Page](#)
[Faculty Ads](#)

Current Listings:
32 Faculty Ads
46 Candidate Bios

[Feedback](#)

Sort by Filter by

	Department	Target rank	Posting Date App Deadline	Preferred Research Areas
	Chemical Engineering Louisiana State University	Asst. Prof., Assoc. Prof., Prof.	Oct 17, 2011 none	Environment/sustainability, Energy
	Chemical and Biochemical Engineering Rutgers University	Asst. Prof., Assoc. Prof., Prof.	Oct 17, 2011 none	Reaction engineering, Bioengineering, Process engineering, Energy, Separations, Manufacturing/logistics
	Chemical Engineering University of Toledo	Asst. Prof., Assoc. Prof., Prof.	Oct 15, 2011 none	Environment/sustainability, Energy
	Chemical and Biomolecular Engineering University of Pennsylvania	Asst. Prof., Assoc. Prof., Prof.	Oct 11, 2011 none	unrestricted
	Department of Chemical Engineering Auburn University	Asst. Prof., Assoc. Prof., Prof.	Oct 11, 2011 none	Bioengineering
	Chemical and Biological Engineering University at Buffalo (SUNY)	Asst. Prof., Assoc. Prof.	Oct 10, 2011 Dec 1, 2011 Oct 6, 2011	Materials, Thermo/stat-mech, Modeling/simulation, Nanotechnology, Energy

- Add Faculty Ads or other job openings
- Sort by research area
- Filter by Location
- Conference Schedule

Awards

- AICHE-CAST/CACHE Himmelblau Award
 - Administered by AICHE CAST division
 - Recognizes contribution to computer-based chemical engineering education made within the past decade
 - *Jason Keith*
- AICHE Evans Award
 - Institute-level award of AICHE
 - Recognizes lifetime achievement in chemical engineering practice
 - *Jan J. Lerou*
- CACHE/ASEE Award
 - Administered by ASEE
 - For significant contributions in the development of computer aids for chemical engineering education
- Please help with nominations each year!

Leadership – Task Forces

- Awards
- Biosystems
- Case studies
- Conferences
- Energy
- Learning Resources
- Molecular Modeling
- Smart/Sustainable Manufacturing
- Software engineering
- Website

CACHE Resources

□ Expenses

- *Awards and prizes, task force activities, trustee meetings, office operations, software development*

□ Income

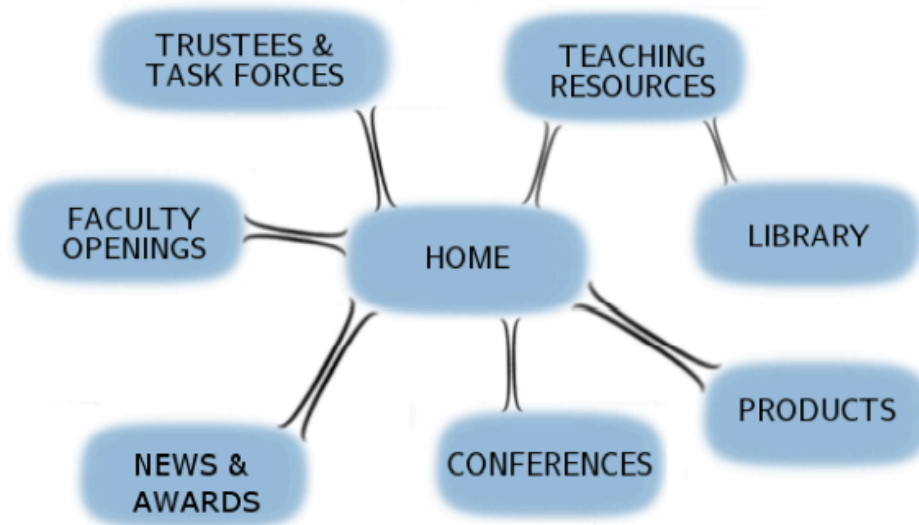
- *Conferences*
- *Grants*
- *Software sales and licenses*
- *Affiliates*
 - \$200/year for membership
 - 105 affiliates in US, 28 in other countries (133 total)

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Welcome to CACHE

CACHE is a not-for-profit organization founded in 1969 to promote cooperation among universities, industry and government in the development and distribution of computer-related educational aids for the chemical engineering profession. [More...](#)



only search CACHE

– Current Events –

Accepting Nominations for CAST Division Awards

Chemical Engineering Faculty Openings

Michael E. Hanyak, Jr. Receives 2011 ASEE-CACHE Award

Biographical Profiles of Faculty Candidates

Doyle, Gatzke, and Parker win CAST Himmelblau award

Winter 2012 Newsletter

Fuel Cell Curriculum Project Website

2012 ASEE Summer School Information

News Article on CACHE Guide to Teaching Design

Summary

- CACHE does a lot for the ChE community
 - *Software*
 - *Conferences*
 - *Educational Materials*
 - *Dissemination*
 - *Awards*
 - *Leadership*