

# CHED

## DIVISION OF CHEMICAL EDUCATION

**Final Program, 234th ACS National Meeting, Boston, MA, August 19-23, 2007**

Cathy Middlecamp, Ingrid C. Montes, and Maria T. Oliver-Hoyo, *Program Chairs*

### **SOCIAL EVENTS:**

**Dinner:** Sat

**GSSPC Reception:** Sun

**High School/College Interface Luncheon:** Sun

**Reception Honoring the German Exchange:** Sun

**Social Hour:** Sun

### **SUNDAY MORNING**

Section A

Unknown Site -- Unknown Room

#### **Center for Workshops in the Chemical Sciences (CWCS)**

#### **Forensic Science; Chemistry and Art**

D. M. Collard and J. C. Smith, *Organizers*

L. J. Kaplan, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**1.** Building communities of scholars: The NSF-sponsored Center for Workshops in the Chemical Sciences (CWCS). **D. M. Collard**, J. C. Smith, L. J. Kaplan

**8:55** —**2.** Freshman seminar: Critical thinking through science and justice. **B. Hillery**

**9:15** —**3.** Camera, light, action: The effective use of films as a teaching tool in forensic science course. **F. Ryvkin**, R. Hunt

**9:35** — Intermission.

**9:45** —**4.** Development of a general education introduction to forensic science course at Bloomsburg University. **M. E. Pugh**

**10:05** —5. The rise and fall of forensics at Merrimack College. **S. M. Theberge**

**10:25** —6. Mentoring and collaboration in the development of teacher-scholar communities. **P. S. Hill**

**10:45** — Intermission.

**10:55** —7. Chemistry in art: Technical examination of 17th century Dutch painting as interdisciplinary course work for nonscience and science majors. **E. S. Uffelman**

**11:15** —8. Cross-curriculum implementation of art in chemistry at Villanova University. **A. F. Lagalante**

**11:35** —9. Developing a chemistry in art course at Miami University. **S. S. Marine**

**11:55** —10. Chemistry of art: Development of a college-level course for nonscience majors and a summer camp for students in middle school. **E. T. Wise**

Section B

Unknown Site -- Unknown Room

### **Green Chemistry as an Integral Component of Academic Sustainability Centers**

E. J. Brush, *Organizer*

P. T. Jackson and K. J. Matus, *Presiding*

**8:30** — Introductory Remarks.

**8:35** —11. Solution based sustainability centers. **J. C. Warner**

**9:00** —12. Like a covalent bond for sustainability centers: The linking role of green chemistry. **K. J. Matus**, P. T. Anastas, W. C. Clark

**9:25** —13. Integrating sustainability into the STEM disciplines at Bridgewater State College. **E. J. Brush**

**9:50** — Intermission.

**10:00** —14. Incorporating green chemistry into the campus sustainability initiatives at St. Olaf College. **P. T. Jackson**, G. O. Spessard, R. M. Hanson, M. A. Klingshirn, P. Sandberg, J. Farrell

**10:25** —15. Infusing sustainability across the curriculum using our green chemistry project as a model. **M. C. Cann**

**10:50** —**16.** Green chemistry and sustainability: Essential elements for chemical pedagogy. **T. J. Collins**

**11:15** — Discussion.

Section C

Unknown Site -- Unknown Room

**Finding Your Catalyst - Lowering the Barrier From Graduate School to Industry**

**Preparing for a Successful Transition from Graduate School to Work**

*Cosponsored with WCC, BMGT, PROF, SCHB, YCC, and INOR*

*A. Lee, Organizer*

*S. Habicht, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**17.** Preparing for life after graduate school (PFLAG): A new ACS workshop. **J. I. Shulman**

**9:00** —**18.** ACS resources for career success. **D. E. Harwell**

**9:25** —**19.** Transitions from graduate school to professional life. **S. V. Vercellotti**, J. R. Vercellotti

**9:50** — Intermission.

**10:00** —**20.** Preparing for interviews and work in "Big Pharma". **L. S. Malisheski**

**10:25** —**21.** Career preparation from beyond the laboratory. **A. C. Myers**

**10:50** —**22.** A new faculty's perspective on critical professional development skills. **G. D. Bothun**

**11:15** —**23.** What to expect in the workforce and what is expected of you. **C. A. Maryanoff**

**11:40** — Concluding Remarks.

Section D

Unknown Site -- Unknown Room

**High School Program**

## **The High School-College Interface**

R. Tanner and L. Thompson, *Organizers*  
S. Lantos, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:45** —**24.** Exploring the high school-college interface. **M. Z. Hoffman**

**9:10** —**25.** Challenges of teaching high school chemistry in Germany. **M. Sgoff**

**9:30** —**26.** Teaching chemistry with technology from Texas Instruments. **M. Osborne**

**10:20** — Intermission.

**10:35** —**27.** Polymers in the field and track. **M. E. Harris**

**11:00** —**28.** AP redesign panel. **D. Kliza**, H. Gendreau, J. Spencer, J. Mauch

## **E-Books for Chemistry Research and Instruction**

*Sponsored by CINF, Cosponsored with CHED*

## **SUNDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

## **Center for Workshops in the Chemical Sciences (CWCS)**

### **Chemistry and Art**

J. C. Smith and L. J. Kaplan, *Organizers*  
D. M. Collard, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**29.** Art and chemistry: Italian style. **J. A. Smieja**

**1:55** —**30.** Broad application of materials and ideas from the "Chemistry of Art" workshop: From campus to community. **E. K. Woller**, D. F. Woller

**2:15 —31.** Case of the fantastic forgery: A chemical instrumentation capstone project. **M. L. Shulman**

**2:35** — Intermission.

**2:45 —32.** Developing and teaching an honors chemistry and art course. **J. Touster**

**3:05 —33.** Enriching a science and art course for nonscience majors through polarized light microscopy. **M. S. Leonard**

**3:25 —34.** Incorporating art into the chemistry curriculum. **N. A. Eskew**

**3:45** — Intermission.

**3:55 —35.** Polymerization studies of oil paint films. **L. J. Muller**, S. B. Stollar, E. Williamson, J. Dekermendjian

**4:15 —36.** Verdigris: Taking copper patina from the Roman dung pile to the modern chemistry lab. **D. M. Simon**

**4:35 —37.** Big excitement - small science. **N. E. Schlotter**

**4:55 —38.** Enhancing teaching and learning chemistry with natural bond orbital (NBO). **M. Ayoub**

Section B

Unknown Site -- Unknown Room

### **Connections to Germany: Research and Education Opportunities**

*Cosponsored with German Chemical Society, ACS International Activities Committee, CHED International Activities Committee, ACS Northeastern Section, Graduate Student Symposium Planning Committee, SOCED, WCC, YCC, and PRES*  
M. Z. Hoffman, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —39.** Biological chemistry research at Ludwig-Maximilians University, Munich, Germany. **E -M. Jahn**, T. Carell

**1:55 —40.** DNA as catalyst in organic synthesis: An approach for sequence-specific DNA detection. **T. N. Grossmann**, O. Seitz

**2:15 —41.** Characterization of smart materials synthesized via controlled radical polymerization.

C. Corten, D. Kuckling

2:35 — Intermission.

2:45 —42. DAAD: Funding academic exchange and promoting research in Germany. C. Schaefer

3:05 —43. Basic research in Germany: DFG, the German Research Foundation. G. Bechtold

3:25 —44. The Boston Consulting Group Germany. C. Jopp

3:45 — Intermission.

3:55 —45. The German Chemical Society and chemical education and research in Germany. K. Begitt, J. Breffke

4:20 —46. Younger Chemists Committee of the Northeastern Section. L. Dafik

4:40 —47. Study abroad opportunities in Germany for American science and engineering undergraduates. M. Z. Hoffman, N. Downey

4:55 — Concluding Remarks.

Section C

Unknown Site -- Unknown Room

### **Finding Your Catalyst - Lowering the Barrier From Graduate School to Industry**

#### **Career Perspectives and Insights into Life after Graduate School**

*Cosponsored with WCC, BMGT, PROF, SCHB, YCC, and INOR*

A. Lee, *Organizer*

M. Wyche, *Presiding*

1:30 — Introductory Remarks.

1:35 —48. Academic vs. industrial research in my career. R. R. Schrock

2:00 —49. Career evolution from academia to industry. A. D. Palkowitz

2:25 —50. Life after graduate school: Working at a national laboratory. E. S. Peterson

2:50 — Intermission.

3:00 —51. Making the transition: How to go from a scientist to the Patent Office. S. P.

## **Thompson**

**3:25 —52.** The blending of research and teaching with entrepreneurship: The launching of Liquidia Technologies by graduate students. **J. M. DeSimone**

**3:50 —53.** Things you should know before starting your career in industry. **V. J. Kuck**

**4:15 —** Concluding Remarks.

Section D

Unknown Site -- Unknown Room

## **High School Program**

### **The ACS and You**

R. Tanner, *Organizer*

L. Thompson, *Organizer, Presiding*

**1:30 —54.** Programs and products from the ACS Education Division: An update. **M. Tinneland**

**1:55 —55.** ACS Exams Institute. **T. Holme**

**2:20 —56.** Chemistry clubs. **T. Taylor**

**2:45 —57.** Ready-to-use resources from the *Journal of Chemical Education*. **E. K. Jacobsen**, J. W. Moore, L. Slocum, L. Fanis

**3:10 —** Intermission.

**3:25 —58.** Art of chemistry. **L. Weber**

**4:15 —** Closing Remarks and Evaluations.

Section E

Unknown Site -- Unknown Room

## **High School Program**

### **The High School-College Interface**

R. Tanner and L. Thompson, *Organizers*  
S. Lantos, *Organizer, Presiding*

**1:30 —59.** Inquiry learning in the heterogeneous classroom. **L. Thompson**, J. Speyer, M. Angione

**2:20 —60.** VSEPR shmsepr: How do you teach molecular geometry? **D. Kliza**

**3:10** — Intermission.

**3:25 —61.** Creative activities for National Chemistry Week and your classes. **L. Hogue**

**4:15** — Closing Remarks and Evaluations.

## **E-Books for Chemistry Research and Instruction**

*Sponsored by CINF, Cosponsored with CHED*

## **SUNDAY EVENING**

Section A

Unknown Site -- Unknown Room

### **General Posters**

C. V. Gauthier, *Organizer, Presiding*

**7:30 - 9:30**

**62.** National Chemistry Day/Week: Highlights and successes from 20 years. **R. M. de Groot**, L. Hogue, T. A. Halmi, K. M. Jackson

**63.** Twenty years of National Chemistry Week: Twenty years of volunteers. P. G. Fox, **C. V. Gauthier**, A. G. Wall, C. M. Lang

**64.** Chemists celebrate Earth Day: 2007 report and 2008 preview. **A. Jorgensen**, M. Burgener, K. M. Jackson

**65.** National Chemistry Week 2007: The many faces of chemistry. **T. A. Halmi**, R. A. Woodall, A. J. Ribes, R. M. de Groot

66. Your *new* chemical education resource shelf. **H. H. Harris**
67. 20th Biennial Conference on Chemical Education. K. Reck, **S. M. Wietstock**, R. Zibuck
68. Tribulations and jublations initiating a chemistry club. **C. A. Smith**
69. Today's Science for Tomorrow's Scientists: A web based tool to introduce current research in science and engineering into middle and high school classrooms. **C. R. Pharr**, J. W. Moore
70. Evaluation of an online professional development course: Nanoscience for teachers. **J. M. H. Tomasik**, J. W. Moore
71. Teaching middle school students the concept of the cosolvent using colorful chemistry and molecular modeling. **J. M. E. Quirke**, J. C. K. Quirke
72. Teaching school children about mixing colors using a reversible color change experiment. **J. M. E. Quirke**, J. C. K. Quirke, J. B. Alweiss
73. Using a colorful, 10-minute demonstration to illustrate thermodynamic vs. kinetic control. **J. M. E. Quirke**, D. R. Hajje
74. Improved student retention and timely graduation via “Plus Two” peer-led team learning. **Y. J. Kim**, J. E. Becvar
75. Online pre-lecture quiz design for student learning optimization in a one-semester non-majors general chemistry course. S. Shima, **T. A. Miller**
76. Online assessment in general chemistry. **C. M. Torres**
77. Analysis of initial placement test results and enrollment in honors general chemistry on chemistry major graduates. **K. E. Stevens**
78. Facilitating student preparation for exams in general chemistry. **D. B. King**
79. Undergraduate students' beliefs about the nature of matter. M. B. Nakhleh, **J. K. Weller**
80. Match and Flip Puzzle – for the teaching of fatty-acid-containing lipids. **B. Büdy**
81. Inquiry-based laboratory instruction by minijournal format materials. **N. Zhao**, F. Schmidt
82. Research in the first year laboratory. **A. Carrier**, J. Ford, G. M. Willette
83. Nanoparticle uptake by cut flowers: A laboratory demonstration. **K. M. Metz**, K. H. Pedersen, R. J. Hamers, J. A. Pedersen
84. Incorporating nanoscience into first two years of chemistry laboratory curricula. **P. Y.**

## **Furlan**

- 85.** Guided-inquiry exercises in the beginning organic laboratory course to promote student comprehension of the molecular world. **J. A. Cramer**
- 86.** Was it murder? A case study for an organic chemistry laboratory. **M. A. Boucher**, K. M. Specht
- 87.** An information-rich experiment in organic chemistry for chemistry majors: Synthesis of 1-(halobenzyl)-4-(halophenoxy)methyl triazoles. **R. N. Hanson**, I. Kendrick, D. Falcone, J. Bottomy, G. Jones
- 88.** Using study logs to promote learning in organic chemistry. **M. L. Greer**
- 89.** Teaching professional writing in organic chemistry lab courses. **P. J. Alaimo**, J. M. Langenhan, J. Loertscher
- 90.** Analysis of ascorbic acid. W. E. Adams, **S. R. Marcsisin**, O. Ngo
- 91.** Acylation of ferrocene: A greener approach. **K. R. Birdwhistell**, A. Nguyen, R. Kobelja
- 92.** Introducing ecotoxicity to the chemistry laboratory curriculum: Studying green chemistry principles by measuring ecotoxicity using *Escherichia coli*. A. R. Luhrs, **D. J. Tshudy**
- 93.** Incorporating green chemistry into an analytical chemistry curriculum: II. Laboratory development and implementation. **P. T. Jackson**, J. A. Brown, L. M. Kunz, M. J. Germscheid
- 94.** Scanning electron microscopy analysis of archaeological materials: An interdisciplinary project for first-year students. **M. L. Parr**, A. H. Lehman, A. D. Hill, A. C. O'Neal
- 95.** Emission quantum yield determinations: Use of a standard linear relationship. **D. P. Rillema**, R. Kirgan
- 96.** Integrating statistical mechanics with experimental data from the rotational-vibrational spectrum of HCl into the physical chemistry laboratory. **B. R. Findley**, S. E. Mylon
- 97.** Developing an ongoing service-learning program through environmental chemistry. **R. L. Cook**, J. Lappin, E. Cook
- 98.** Chemical safety teams: An approach for teaching laboratory safety. **J. M. Langenhan**, P. J. Alaimo, M. Tanner
- 99.** A research seminar course to support undergraduate research at Bridgewater State College. **S. A. Waratuke**
- 100.** Primo Levi's *The Periodic Table*: A tool for teaching descriptive inorganic chemistry. **J. M.**

## Heising

- 101.** IONiC: Interactive online network of inorganic chemists. **H. J. Eppley**, M. J. Geselbracht, A. R. Johnson, B. A. Reisner, B. S. Williams
- 102.** Simultaneous assessment of students and courses through outcome mastery data. H. Debolt, **A. Baur**, E. L. Harvey
- 103.** AstraZeneca careers in chemistry day, an undergraduate education tool for the exploration of drug discovery. **T. Hoerter**, R. C. Mauger, D. G. Brown, T. Daniels, L. Hinkley, V. Hoesch, J. Krumrine, R. Smith, S. Wesolowski
- 104.** Eggciting! The isolation of porphyrins from brown egg shells and their detection by luminescence. **M. L. Dean**, T. A. Miller, C. Brückner
- 105.** New advances in supercritical fluid extraction: Analysis of fats and natural product process development. **K. J. James**
- 106.** Study of the matrix effects of two types of soils (kaolin and montmorillonite) on the electrokinetic remediation. X. Lu, X. Huang, J. Cheng, Z. Zheng, **S. Bi**
- 107.** Bioinformatics approach to evaluate structure/function relationship and evolutionary aspects of proteins: Comparison of hen egg white lysozyme C and HSLLP1. **K. A. Lenkart**, S. T. Buddha
- 108.** Evaluation of carbohydrate levels in sweet sorghum for biofuels production in Oklahoma. **H. Marshall**, J. Hill, M. Pilkington, K. Ducker, N. L. Paiva
- 109.** Improved stability of fluorinated chloramphenicol acetyltransferase by a single-isoleucine mutation. **M. X. Lee**, N. Voloshchuk, J. K. Montclare
- 110.** Studies on the protein-substrate hydrophobic interactions of the retinoid binding proteins. **F. Nossoni**, C. Vasileiou, K. S. S. Lee, B. Borhan
- 111.** New method of synthesis for the substituted aromatic di-carbonyl pigments. **S. Khatirinejad-fard**, M. Khanlou

## MONDAY MORNING

Section A

Unknown Site -- Unknown Room

**Revitalizing the Undergraduate Descriptive Inorganic Chemistry Course**

G. Crundwell, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —112.** Teaching descriptive inorganic chemistry in the format of the game show, "Jeopardy". **J. Van Houten**

**9:00 —113.** Utilizing a postdoctoral faculty fellow as the central instructor for inorganic chemistry at Boston University. **J. R. Miecznikowski**, L. A. Tyler, J. P. Caradonna

**9:25** — Discussion.

**9:35** — Intermission.

**9:40 —114.** The traditional survey without the mind-numbing boredom. **B. L. Westcott**

**10:05 —115.** Introducing materials chemistry into descriptive inorganic chemistry. **K. S. Brewer**

**10:30 —116.** What should be included in a "Foundations of Inorganic Chemistry" course for the new ACS guidelines? **G. Wulfsberg**, T. Koritsanszky

**10:55** — Discussion.

Section B

Unknown Site -- Unknown Room

### **Community Outreach and Service Learning through Green Chemistry**

J. C. Warner and I. J. Levy, *Organizers*

D. K. Wicht, *Presiding*

**8:30** — Introductory Remarks.

**8:35 —117.** Improving people's lives through the transforming power of green chemistry. **C. M. Baldwin**, J. R. Barker, K. B. Lewoczko, R. F. Johnston, S. E. Perlinger

**8:55 —118.** Chemistry and consumption: Introducing green chemistry to the general college community through greened consumer products. **R. W. Gurney**

**9:15 —119.** Future policy makers need science too: Participatory learning for nonscience majors. **K. J. Matus**, W. C. Clark

9:35 — Intermission.

9:45 —120. Green chemistry laboratory and ACS SEED students: A unique match. **S. Trakhtenberg**, A. S. Cannon, R. A. Boggs, J. C. Warner

10:05 —121. Green chemistry curriculum development to empower outreach to middle- and high-school students and teachers. **A. L. Langlais**, I. J. Levy, **A. L. Wagers**

10:25 —122. Loyola University green chemistry outreach program. **L. Thomas**, K. R. Birdwhistell, E. J. Ramos, C. Simmers

10:45 — Intermission.

10:55 —123. Green chemistry exposure on campus. **J. B. Easter**

11:15 —124. The state of green chemistry at the University of Detroit Mercy. **A. M. Hamlin**, L. R. Cullen, K. C. Lanigan, M. J. Mio

11:35 —125. U.T.-Martin SAACS and local ACS sections network for green chemistry outreach. **S. K. Airee**

Section C

Unknown Site -- Unknown Room

### **NSF Catalyzed Innovations in the Undergraduate Curriculum**

C. Burkhardt, *Organizer*

R. K. Boggess, *Organizer, Presiding*

8:30 — Introductory Remarks.

8:35 —126. Picturing to learn: Visually thinking and expressing science as a powerful tool for both teachers and students. **F. Frankel**, D. R. Sadoway, R. Rosenberg, J. Larrabee, C. Muldoon, H. Haste

8:55 —127. LUCID: Measuring and improving learning outcomes in general chemistry. **T. Wolfskill**, D. M. Hanson

9:15 —128. Service learning in chemistry: A three year assessment. **A. G. Cavinato**

9:35 — Intermission.

9:45 —129. Enhancing the undergraduate laboratory experience by combining an environmental focus, instrumental methods and service-learning. **S. Sutheimer**

**10:05 —130.** Interdisciplinary teaching: Using the study of sprouts to teach mathematics and science at a liberal arts college. **W. Lammela**, B. Brown, C. Boyd, L. M. O'Brien

**10:25 —131.** ICP-MS analysis of lead contamination in soil: Integrating research into first semester general chemistry. **D. Richter-Egger**, N. Grandgenett, J. Hagen, F. Laquer, R. Shuster

**10:45** — Intermission.

**10:55 —132.** Implementation of a virtual control room in the Integrated Science, Business and Technology Program. **W. L. Weaver**, M. W. Timmerman, N. L. Jones

**11:15 —133.** Integrating computation, independent inquiry, and scientific presentations with the undergraduate physical chemistry laboratory. **C. K. Johnson**, J. E. Headrick, D. L. DuBose, C. L. Berrie, J. Heppert

**11:35 —134.** Identification of bacteria using MALDI-TOF mass spectrometry: An undergraduate laboratory exercise. **W. A. Patton**

**11:55** — Concluding Remarks.

Section D

Unknown Site -- Unknown Room

## **20th Anniversary of National Chemistry Week**

### **The Many Faces of Chemistry**

*Cosponsored with Committee on Technician Affairs, CMA, and PRES*

I. Montes, *Organizer*

L. Hogue, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —135.** Connecting chemistry to the community: 20 Years of National Chemistry Week. **A. G. Wall**, C. M. Lang

**9:00 —136.** George Pimentel and why every week is National Chemistry Week. **B. Z. Shakhashiri**

**9:25 —137.** NCW 20th anniversary: Pittsburgh style! **V. M. Mautino**

**9:50** — Intermission.

**10:00 —138.** PR experience with television public service announcements: NCW and CCED. **J.**

## **B. Trent**

**10:25 —139.** African-American women chemist project, the scientific achievements of some remarkable women. **J. E. Brown**

**10:50 —140.** Volunteer in public outreach: "Thinking outside the box". **R. A. Woodall**

**11:15 —141.** Communicating chemistry. **D. A. Katz**

**11:40 —** Intermission.

**11:45 —142.** New directions and current activities in the Division of Chemical Education. **M. M. Cooper**, T. J. Greenbowe, L. Jones, J. E. Lewis

## **Many Faces of Chemistry: The Merck Index Women in Chemistry Award Symposium**

*Sponsored by WCC, Cosponsored with CMA, PROF, and CHED*

## **MONDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Forensic Chemistry in the Undergraduate Curriculum**

L. A. Porter Jr., *Organizer, Presiding*

**1:30 —** Introductory Remarks.

**1:35 —143.** CSI in the classroom: Teaching science in a non-majors first-year seminar using forensics and chemistry. **J. J. Heymann**, L. K. Charkoudian, M. J. Adler, K. L. Haas, K. A. Mies, J. F. Bonk

**1:55 —144.** Engaging non-majors beyond introductory chemistry: A liberal arts science course in forensic chemistry. **L. A. Porter Jr.**

**2:15 —145.** Bachelor of science in forensic science. **M. H. Silveira**

**2:35 —** Discussion.

**2:55 —** Intermission.

**3:05 —146.** Hands-on forensics. **D. A. Katz**

**3:25 —147.** Internship with the Boston Police Crime Lab: Validation of Py-GC/MS and creation of automotive paint chip cross sections: Lessons in research practices. **K. E. O'Brien**, E. Ziolkowski

**3:45 —148.** Multistep synthesis of highly functionalized diphenyl ethers: A non-majors' forensic science experiment. **M. H. Silveira**, M. D. Blalock, M. Q. Clark, T. M. Doggett, B. L. Galloway, N. A. Jones, C. A. Nettles, E. E. Templet, K. M. Thibodeaux

**4:05 —** Discussion.

**4:25 —** Concluding Remarks.

Section B

Unknown Site -- Unknown Room

### **Community Outreach and Service Learning through Green Chemistry**

J. C. Warner and I. J. Levy, *Organizers*

R. W. Gurney, *Presiding*

**1:30 —** Introductory Remarks.

**1:35 —149.** Creating the WOW! **F. K. Wood-Black**

**1:55 —150.** "Sewing" the seeds of green chemistry: Cub Scouts. **R. MacTaylor**

**2:15 —151.** Using green chemistry as an outreach to youth through WISE, Kids to College, and Girls Incorporated. **C. E. MacTaylor**, L. Comeford, R. MacTaylor

**2:35 —** Intermission.

**2:45 —152.** Green chemistry outreach to Salem, Massachusetts public schools. C. E. MacTaylor, **L. Comeford**, D. Mason-McCaffrey

**3:05 —153.** Service learning opportunities with K-12 educators: Developing a green chemistry unit plan for eastern Massachusetts high schools. **C. Burke**, E. J. Brush

**3:25 —154.** Partnering with K-12 organizations to develop green chemistry curricula that meet local needs. **A. S. Cannon**

**3:45 —** Intermission.

**3:55 —155.** Hands on learning: The joy of discovery. **F. K. Wood-Black**

**4:15 —156.** Evaluation of the "What's 'Green' About Biodiesel?" high school curricular unit. **A. N. French**, J. Heppert, C. Bode

**4:35 —157.** "Cleaning up" chemistry: Soap making workshop demonstrating the principles of green chemistry. **J. M. Kivaa**, I. J. Levy

Section C

Unknown Site -- Unknown Room

### **NSF Catalyzed Innovations in the Undergraduate Curriculum**

R. K. Boggess, *Organizer*

C. Burkhardt, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —158.** NSF course, curriculum, and laboratory improvement (CCLI) program. S. Hixson, E. L. Lewis, H. H. Richtol, **P. Varma-Nelson**

**1:55** — Panel Discussion of the Revised CCLI Program.

**2:40** — Intermission.

**2:50 —159.** Enhancing the undergraduate chemistry curriculum with gas chromatography-mass spectrometry. **E. S. Magyar**, M. C. Lamontagne, J. G. Magyar

**3:10 —160.** Incorporating GC-MS into faculty-mentored teaching and research. **D. A. Perry**

**3:30 —161.** Conducting polymers in undergraduate general and organic chemistry laboratories. **T. M. Pappenfus**, D. L. Hermanson, M. L. Mekoli, J. H. Melby, N. E. Carpenter

**3:50** — Intermission.

**4:00 —162.** Enhancing student learning by incorporating NMR spectroscopy into the general and organic chemistry curriculum. **I. B. Nejad**, J. S. Chen

**4:20 —163.** GC and elemental analyzer laboratories in general chemistry. **S. J. Donnelly**

**4:40 —164.** Application of AFM in imaging of nanowires and nanostructured semiconductor electrocatalysts. **M. Hepel**

**5:00** — Concluding Remarks.

Unknown Site -- Unknown Room

## **20th Anniversary of National Chemistry Week**

### **The Many Faces of Chemistry**

*Cosponsored with Committee on Technician Affairs, CMA, and PRES*

I. Montes, *Organizer*

L. Hogue, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —165.** National Chemistry Week: Twenty years of growth, success, and great chemistry. **R. M. de Groot**, C. M. Lang, A. G. Wall, L. Hogue, T. A. Halmi, K. M. Jackson

**1:55 —166.** Chemistry outreach from 2 to 102. **A. Hazari**

**2:15 —167.** Living NCW to the extreme. **W. F. Carroll Jr.**

**2:35** — Intermission.

**2:45 —168.** National Chemistry Week traditions for the California Section. **M. L. Wu**

**3:05 —169.** Erie, Pennsylvania puts a positive face on chemistry. **T. A. Halmi**

**3:25 —170.** Scaling up the fun: The evolution of National Chemistry Week in Cleveland. **P. G. Fox**, L. T. Kuhns, M. Schiele, K. M. Wollyung

**3:45** — Intermission.

**3:55 —171.** Chemistry Open House and Science Exploration Gallery at Texas A&M University. **W. L. Keeney-Kennicutt**

**4:15 —172.** Science and fun—a great combination during NCW. **L. Hogue**, A. M. Sarquis

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## **Undergraduate Research Poster Session**

### **Analytical Chemistry**

*Cosponsored with ANYL, and SOCED*  
N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**173.** Analysis of mitochondrial distribution within muscle fibers as an age dependent factor using direct histological sampling interfaced with capillary electrophoresis with laser-induced fluorescence detector. **S. P. Hartono**, H. Ahmadzadeh

**174.** Analysis of vitamin C in fruit, vegetables and juices via high pressure liquid chromatography. **Y. Ha**, S. Ranganathan, P. Irigoyen

**175.** Applications of hydroponics on phytoremediation using sweet tomato and patio tomato. **A. P. Aguirre**, S. Arteaga

**176.** Assessment of second hand cigarette smoke on various fabrics. L. Buttitta, R. Miller, D. Nguyen, **E. White**, C. H. Lisse

**177.** Cyclic, differential pulse and square wave voltammetry of dibenzazepine derivatives and analogous compound. I. Nieves, **J. A. Rodríguez**, R. Oyola, L. E. Piñero, C. García

**178.** DDT dehalogenation reaction catalyzed by cobalt tetrapyrrolineporphyrine complexes in pyridine solution. **A. Thomas**, J. Shao, C. A. Hansen

**179.** Detecting serotonin using capillary electrophoresis. **R. N. Nunes**, J. Bedard, C. E. MacTaylor

**180.** Electrochemical and spectroelectrochemical characterization and ESR studies of cobalt tetrapyrrolineporphyrine compounds in DMSO solution. **J. Shao**, J. Commodore, B. Han, C. A. Hansen

**181.** Epicatechin levels in coffee. A. N. Phillips, **C. E. MacTaylor**

**182.** Epicatechin levels in teas with and without milk. **R. L. Benson**, F. I. Edionwe, C. E. MacTaylor

**183.** Extraction of nicotine from various food sources. **L. Nguyen**, C. E. MacTaylor

**184.** Lead quantitation in soils surrounding Salem Harbor. **T. Husejinovic**, C. E. MacTaylor

**185.** Measuring heterogeneous rate constants: Reactions at indium surfaces. **E. Giordano**, Y. Baez Sosa, W. J. Bowyer

**186.** Monoclonal antibodies as probes for conformational changes of ferritin on gold electrodes. **N. L. Ritzert**, D. C. Zapien

- 187.** Mycotoxins: Identification procedures established by the Food and Drug Administration. **N. Kaur**, P. Svoronos, P. Devy, V. Abbruscato
- 188.** Non-destructive detection of deep muscle bruising in salmon by near infrared spectroscopy. **M. M. Hammers**, M. Lin, D. M. Mayes, B. A. Rasco, A. G. Cavinato
- 189.** Nonlethal detection of bacterial kidney disease in Pacific salmon by near infrared spectroscopy. **T. L. Boethin**, M. M. Hammers, K. Troutman, T. Hoffnagle, A. Greenlee, A. G. Cavinato
- 190.** Quantification of lead in paint samples. **A. M. Burridge**, C. E. MacTaylor
- 191.** Quantitation of taurine in a variety of energy drinks. **N. C. Rudolph**, C. E. MacTaylor
- 192.** Quantitative measurements of illicit drugs using Raman spectroscopy and chemometrics. **O. S. Fenton**, K. Frederick
- 193.** Sieving buffers in capillary electrophoresis with derivatization and laser-induced fluorescence detection. **J. Bedard**, C. E. MacTaylor
- 194.** Structural determination of silanols using a combinatorial approach. M. Chauhan, **H. Ann**
- 195.** Study and characterization of electrogenerated chemiluminescence. **A. Hruska**, P. Walsh, R. Scott
- 196.** Toward the development of photochromic optical sensors for metal ion detection based on spirocyan dyes. **O. Duong**, C. A. Kelley, A. R. Williams, S. E. Stitzel
- 197.** Use of inductively coupled plasma optical emission spectrometry ICP-OES to measure metal uptake in grass. **L. De Santiago**, S. Arteaga PH. D
- 198.** What's in your bottle of water? Study of metal ions in bottled water. **K. M. Ashley**, R. Abbas, I. U. Ekpo, M. C. Koether
- 199.** Method development for the elemental analysis of air sensitive silicon based compounds. M. Chauhan, **N. Kaur**

Section F

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## **Undergraduate Research Poster Session**

### **Biochemistry**

*Cosponsored with BIOT, SOCED, and BIOL*  
N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

- 200.** Analysis of commercially available antibodies to hepatitis B surface antigen. **C. McCage**, **O. Ngo**, C. E. MacTaylor, A. MacLean
- 201.** Characterization of human breast cancer-derived epithelial cells (HBCEC). **C. Gottfried**, C. Bertram, R. Hass
- 202.** Cloning and overexpression of an *E. coli* pbp1a. **C. M. Alexander**, L. T. Lamech, K. M. Specht
- 203.** Cloning and overexpression of a putative penicillin-binding protein from *Burkholderia cenocepacia* in *E. coli*. **L. H. O'Connor**, L. T. Lamech, K. M. Specht
- 204.** Detection of small interfering RNAs by rolling circle amplification. N. Li, **S. Kress**, W. Zhong
- 205.** Determination of homocysteine levels in endothelial and stromal cell cultures by HPLC. **A. Riggi**, G. Donohoe, Z. Brewer, B. Freeman, M. Flood, S. Dodson, A. Baur
- 206.** Development of an immunoassay for 5-S-cysteinyl dopa. **L. B. Sullivan**, J. M. St. John, C. E. Immoos
- 207.** DNA damage induced by chromium picolinate. **J. A. Mackey**, V. H. Coryell, A. Lencinas, D. M. Stearns
- 208.** Effect of nonenzymatic glycation on the autooxidation kinetics of adult human hemoglobin. **R. M. Raagas**, D. M. Robles, R. M. Esquerria
- 209.** Effects of pH and urea on the random coil  $\alpha$ -proton chemical shift of alanine in pentapeptides with neighboring acidic and basic amino acid residues. **A. R. de Alwis**, S. L. McKay
- 210.** Evaluation of natural variation in gene expression among the normal population, with a further focus on the mitochondrial genes and enzyme activity. U. Ahting, **K. Chow**, D. Mehta, T. Meitinger, H. Prokisch
- 211.** Fluidic production of molecular hydrogen using the biocatalyst hydrogenase. **D. M. Stallings**, K. D'Antignac, K. Knappenberger
- 212.** Identification of the c-met receptor as a novel target for the treatment of EGFRvIII-expressing glioblastoma. **R. A. Flynn**, P. Huang, F. B. Furnari, W. K. Cavenee, F. M. White

- 213.** Lipophilic cations: DNA interactions, and bacterial toxicity of arylphosphonium salts. **L. D. Munoz**, K. H. Almeida, J. C. Williams Jr.
- 214.** Metabolic engineering to biosynthesize terpenoids. **A. M. Baevich**, C. V. McNeil, S. P. T. Matsuda
- 215.** Production of heterologous proteins by means of the recombinant moss *Physcomitrella patens* in photobioreactors. **E. A. Voigt**, F. Lehr, C. Posten
- 216.** RNAi related dsRNA-protein complexes investigated by atomic force microscopy. **H. A. Arjes**, N. Anspach, W. Nellen
- 217.** Role of alternative processivity clamp  $\beta^*$ : Interactions with UmuD. **M. J. Ordazzo**, B. Koleva, T. E. Wales, C. Morgan, J. R. Engen, P. J. Beuning
- 218.** S-glutathiolation of c-Abl in vitro and in vivo. **Y -C. Chai**, A. Leonberg, J. Sullivan
- 219.** Structural elucidation of pyrrolizidine alkaloids from *Onosmodium virginianum*. **T. D. Holcomb**, A. M. Justensen, W. R. Parker, R. B. Kelley

Section G

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Chemical Education**

*Cosponsored with SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

- 220.**  $^{19}\text{F}$ -NMR investigation of the addition reactions of 2,2,2-trifluoroacetophenone. **K. W. Field**, K. M. Williams
- 221.** Ammonia borane as an alternative to sodium borohydride. **N. T. Strande**, S. S. Shafer, K. H. Sheetz, T. A. Evans, P. Arthasery, S. L. McKay
- 222.** Comparative ecotoxicity of petroleum diesel, biodiesel from waste fryer oil and biodiesel from unused fryer oil. **L. R. Hasiuk**, I. J. Levy, S. E. Massanari, **M. A. Weaver**, **E. Wetter**
- 223.** Cups to cleaners: Trash to treasure. **J. N. Boice**, R. W. Gurney
- 224.** Determination of  $\text{pK}_a$  of mono-, di-, and tricarboxylic acids using  $^{13}\text{C}$  NMR spectroscopic method. **E. Hughes**, J. H. Shin

- 225.** Determination of refractive index using a laser pointer: Quantitative analysis of binary solvent systems. **H. Chon**, J. H. Shin
- 226.** Determination of the isoelectric points of neutral and basic amino acids by  $^{13}\text{C}$  NMR spectroscopic method. **Y. M. Kim**, J. H. Shin
- 227.** "Green" electrophilic aromatic substitution for the organic chemistry laboratory. **E. Eby**, S. T. Deal
- 228.** New chemistry laboratory experiments involving art. C. A. Morse, **M. Sweetgall**
- 229.** Conversion of instructional software to modern computing environments. **D. P. Pieper**, J. L. Holmes, J. W. Moore
- 230.** Searching for the infamous trans-fat. **M. H. Tran**, T. A. Evans, J. L. Fantini
- 231.** Single crystal and powder X-ray diffraction of titanium dioxide: An advanced undergraduate laboratory experiment. **J. B. Heyman**, B. M. Foxman, T. L. Rose
- 232.** Understanding keto/enol and enol a/enol b equilibria: A computational laboratory using AM1 method. **L. J. Cotto**, **J. G. Estevez**, **Z. Cortes**, M. E. Maldonado, L. Ramirez-Velez, **V. M. Ramos**
- 233.** Upper-level chemistry students' conceptions of buffers and acid-base equilibrium problems. **A. Sutherland**, Y. Kim, G. Simpson, M. Orgill
- 234.** Using concept inventories in organic chemistry. **M. R. Dobberpuhl**, D. P. Cartrette

Section H

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Computational Chemistry**

*Cosponsored with SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**235.** Hydrogen abstraction-induced ring opening in thiazoles. D. S. Dudis, **T. Verrilli**, J. Houseknecht, V. Benin, A. T. Yeates

**236.** Liphophilic cations: Computational analysis of arylphosphonium salts bound to DNA. **G.**

**Rodrequez, J. C. Williams Jr.**

**237.** Spherical atom model for dispersion forces. **M. K. Lee**, G. A. Petersson

Section I

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Environmental Chemistry**

*Cosponsored with ENVR, and SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**238.** “CDtrodes” vs. traditional gold film electrodes in determination of a soil pollutant. **E. Davila**, C. A. Smith

**239.** Comparing the properties of pyridinium and 4-dimethylaminopyridinium ionic liquids. **J. Hatcher**, M. Thomas, S. I. Lall-Ramnarine, J. F. Wishart

**240.** Evaluation of simple solar cells using plant materials as the electron donor. **D. Huntington**, C. E. MacTaylor

**241.** Gentle capture of an airborne virus for online detection with flow cytometry. **K. M. McElhoney**, E. Schick, M. Beckert, D. A. Orsini, K. P. Rhoads

**242.** H<sub>2</sub>Oconee and beyond: Making a difference one paddle at a time. B. Barfield, J. N. Cross, K. Harper, **L. M. Peaden**, S. Rowland, D. Wilson, C. H. Lisse

**243.** In search of the best biodiesel: Bomb calorimetry and GC-MS of biodiesel made from six different oils. **J. Nyoike**, L. Comeford, C. E. MacTaylor

**244.** Investigating the microwave assisted synthesis of ionic liquids. **K. Kerr**, G. Subramaniam, S. I. Lall-Ramnarine, J. F. Wishart

**245.** Metal uptake by *Raphanus sativus* using hydroponics. R. Armenta, **S. Arteaga**, L. De Santiago, A. Aguirre

**246.** Novel determination of hydrophobic pollutants in surface waters. **B. Vallejo**, C. A. Smith

**247.** Physical properties of phosphate ionic liquids. **K. Urena**, M. Thomas, J. F. Wishart, S. I. Lall-Ramnarine

248. Sarcosine, AMPA and glyphosate in montmorillonite clay interlayers: A theoretical molecular level study. **L. Tribe**, A. Slutter, A. Rennig
249. Search for a cadmium point source using stripping voltammetry. **L. Zuniga**, C. A. Smith
250. Synthesis of ionic liquids for toxicity studies. **X. Li**, J. Hatcher, H. R. Walker, C. McEntee, J. F. Wishart, S. I. Lall-Ramnarine
251. Trace metal concentrations in soils on the campus of Southern Connecticut State University. **J. W. Gleason**, G. S. Kowalczyk
252. Ultraviolet analysis of the toluene fraction in bitumen from Agbadu (Western Nigeria). **O. K. Theophilus**, O. Rex
253. Using a bubble column to measure surface activity for wastewater remediation. **A. Liu**, C. Schnitzer
254. "Wood" you use it? **S. Rowland**, B. Barfield, J. H. Owens Jr., D. Wilson, J. K. Metzker

Section J

Unknown Site -- Unknown Room

### Undergraduate Research Poster Session

#### Inorganic Chemistry

*Cosponsored with SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

255. Application of "click " chemistry to CdSe quantum dots. **K. A. Tantillo**, R. C. Somers, P. T. Snee, M. G. Bawendi, D. G. Nocera
256. C-H...I hydrogen bonding networks in 1,3-*bis*-(2,4,6-trimethylphenyl)imidazolium iodide. **C. D. Abernethy**, J. P. Jasinski, C. E. Johnson, A. S. Metell, J. W. Queen
257. Catalytic oxidation of alkenes involving a nafion-bound (peroxynitro)cobalt porphyrin intermediate. **D. Kavanagh**, J. A. Goodwin
258. Comparison of the catalytic activity of water-soluble ruthenium complexes toward phosphate ester hydrolysis. **S. R. Finnell**, T. J. Ahmed, D. R. Tyler
259. Inorganic interface design as a tool for optimization of conducting polymers. **K. Pueschel**, J. J. Martin, C. J. Timpson, A. Sattler, P. N. Kariuki, J. Shah, W. E. Jones Jr.

- 260.** New dibenzofuran-based tridentate ligands for transition metal catalysts for environmentally benign oxidation reactions. **D. Foster**, A. Ali, J. Erler, M. Fujita
- 261.** New indole-based tri- and tetradentate ligands and their complexes. **K. G. Perkins**, A. Ali, M. Fujita
- 262.** Porphyrin nanoparticle supramolecular systems and their catalytic activities. **J. D. Arijeloye**, G. Smeureanu, C. M. Drain
- 263.** Solution behavior of an octabrominated gadolinium porphyrin. **J. H. Owens Jr.**, R. A. Richards
- 264.** Synthesis of chelated gadolinium as MR contrast agents for zinc detection. **R. M. Boiteau**, J. L. Major, T. J. Meade
- 265.** Transfer hydrogenation of acetophenone catalyzed by ruthenium-arene complexes with  $\beta$ -diketonate and  $\beta$ -ketoiminate ligands. **L. S. Valdivia**, T. A. Passik, L. M. Stafford, D. A. Freedman
- 266.** Wide bite angle phosphines: Synthesis, structure and catalysis. **R. J. Gilliard**, B. P. Morgan, R. C. Smith

Section K

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Medicinal Chemistry**

*Cosponsored with MEDI, and SOCED*  
N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

- 267.** Design, synthesis, and activity of small molecule inhibitors of the TNF $\alpha$ /TNFR interaction. J. M. Davis, **C. Pace**
- 268.** Lipophilic cations: Synthesis and toxicity of arylphosphonium salts conjugated to hydrocarbons, ureas and polypeptides. **S. P. Hersey**, J. C. Williams Jr.
- 269.** Lipophilic cations: Synthesis, analysis and HPLC of novel arylphosphonium salts. **D. Bennett**, J. C. Williams Jr.
- 270.** Lipophilic cations: Synthesis, analysis and screening of aryl phosphonium salt esters. **L.**

**Chin**, J. C. Williams Jr.

**271.** Molecular modeling of polymer clay nanocomposites: Lysine and arginine in montmorillonite. **L. Tribe**, A. Davis, G. Joanis

**272.** Photosensitized oxidation of hypoxanthine to xanthine and uric acid in the presence of an alkylating quinone. **Y. Inostroza**, A. E. Alegria

**273.** Practical and scalable synthesis of amino acids and their use as precursor molecules of the bifunctional ligands for cancer therapy and imaging. **H. Lee**, H -S. Chong

**274.** Synthesis and characterization of amino phenyl propane derivatives as monoamine transport inhibitors. B. J. Heyen, **S. Adrian**, K. Wimalasena

**275.** Synthesis of alkynyl derivatives of substituted 4-anilinoquinazolines as coupling partners for the Huisgen [3+2] cycloaddition reaction with novel azides. **R. N. Hanson**, K. Bailey, A. Visentin, A. Kozhushynan, H. T. Pham

**276.** Synthesis of fluorine-18 labelled 1-fluoro-2-propanamine via ring-opening of an acyl-aziridine with fluoride: A new synthon for positron emission tomography. **E. M. van Oosten**, N. Zadikian, K. A. Stephenson, A. A. Wilson, A. K. Yudin, J. H. Meyer, S. Houle, N. Vasdev

**277.** Synthesis of new porphyrin derivatives for photodynamic therapy. **S. Laurent**, D. Samaroo, C. M. Drain

Section L

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## **Undergraduate Research Poster Session**

### **Nanotechnology**

*Cosponsored with SOCED, and BIOHW*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**278.** Controlled functionalization and quantification of organic molecules on mesoporous silica nanoparticles. **R. E. Kohl**, B. G. Trewyn, V. S -Y. Lin

**279.** Electrochemical characterization of self-organized gold nanoparticle~cytochrome *c* superstructures. **A. Piper**, A. S. Harper-Leatherman

**280.** Growth of carbon nanotubes by chemical vapor deposition (CVD) from a 5 gas mixture of H<sub>2</sub>, CH<sub>4</sub>, CO, CO<sub>2</sub> and H<sub>2</sub>O. **D. Callahan Jr.**, J. Leong, E. Pandowo, K. Ziemer, D.

Papageorgiou, A. Sacco Jr.

**281.** Imaging nanoparticles using an EasyScan2 scanning tunneling microscope. **Y. Z. Snyder**, G. W. Britton, T. James, A. Clement, A. Talerico, K. Schreffler, S. Wurzbacher, P. Furlan

**282.** Liquid crystal organization of carbon nanotubes. **G. Y. Georgiev**, R. Doyle, A. Ahlawat, C. Rocheleau, B. Mulkern, J. Mongeau, A. Ogilvie

**283.** Polyaniline-enzyme nanocomposites for biosensors. **B. Khan**, W. L'Amoreaux, D. M. Sarno

**284.** Reaction pH and the morphological evolution of polyaniline nanofibers. **K. Ampofo**, D. M. Sarno

**285.** Ring-substitution and the formation of polyaniline nanomaterials. **S. Da Silva**, D. M. Sarno

Section M

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Organic Chemistry**

*Cosponsored with SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**286.** Alcohol formation: Reduction of carbonyl compounds using green chemistry. **L. Ritchie**, A. B. Todaro

**287.** Approaches to the synthesis of selenium analogs of dapsone. **J. A. Hoch**, **K. H. Le**, L. J. Guziec

**288.** Arylphosphonium salts conjugated to polypeptides. **S. Adediron**, J. C. Williams Jr., J. Henkler

**289.** Aryl substituted corroles: Synthesis and characterization of free base and cobalt containing derivative. **C. A. Prunte**, C. A. Hansen

**290.** Biomimetic receptor-modified chromophores as biosensors. **R. J. Gilliard**, R. C. Smith

**291.** Bipyridyl-incorporating pi-conjugated metallopolymer progenitors. **A. Dennis**, R. C. Smith

**292.** Concomitant crystallization of a hydrocarbon as conformational polymorphs. **R. I.**

**Goldstein**, T. R. Newhouse, D. M. Thamattoor, R. R. Conry

**293.** Design and synthesis of a novel, natural product-based chemotherapeutic agent. **S. E. Winkleman**, M. F. Mechelke

**294.** Design and synthesis of novel goniothalamin analogs. **A. A. Dillman**, M. F. Mechelke

**295.** Design and synthesis of novel Ras farnesyl protein transferase inhibitors. **K. E. Walters**, M. F. Mechelke

**296.** Development of carbene-catalyzed intramolecular cycloadditions. **L. N. Ciardulli**, S. Liebehenschel, A. J. von Wangelin

**297.** Direct synthesis of tamoxifen and related triaryl-substituted alkenes via two-fold extrusion reactions. **I. R. Bothwell**, F. Guziec Jr.

**298.** Electronic perturbation of the copper(II)-catalyzed aminohydroxylation of alkenes: Mechanistic insights and synthetic improvements. **A. C. Jacobsen**, D. J. Michaelis, T. P. Yoon

**299.** Elusive planar bond shifting in [12]annulene: The failure of CASPT2 in singlet diradical systems. **M. N. Braten**, C. Castro, W. L. Karney, M. G. Gutierrez, J. Moll

**300.** Fragmentation of large ring-fused cyclopropylcarbinyl radicals. **D. E. Jones**, **G. Kujawski**, A. Girardin, D. Le, C. Hunt, E. J. Kantorowski

**301.** Green chemistry using bismuth compounds: Bismuth triflate catalyzed allylation of dioxolanes. R. S. Mohan, **J. E. Christensen**, M. Huddle

**302.** Green chemistry: Scaled-up solvent-free synthesis of chalcones and epoxidation of synthesized chalcones with hydrogen peroxide. **M. R. O'Brien**, A. B. Todaro

**303.** Hetero-Diels-Alder reactions of o-quinones. **D. Nayyar**, C. Taylor, J. Zhang

**304.** Hydrogen-bonded structures as organocatalytic motifs. **J. P. Morgan**, **K. R. Sanders**

**305.** Syntheses of tailor-made open-chain oligopyrroles. **E. S. Bartlett**, R. Krueger, M. Broering

**306.** Kinetic isotope effects in the rearrangement of  $\beta$ -acetoxycarbene. **J. M. Nguyen**, M. J. Schnermann, D. M. Thamattoor

**307.** Kinetic studies of alcohol acylation using N-heterocyclic carbene chloroform adducts as organocatalysts. **J. P. Morgan**, J. H. Shrimp

**308.** Microwave mediated reactions toward synthesis of radiosensitizers. W. Price, **M. J. Scheuermann**

- 309.** Nucleophilic asymmetric substitution at silicon. **C. A. Meece**, W. R. Winchester
- 310.** Oxidation of phenols with o-iodoxybenzoic acid. **J. Phillips**, C. Taylor, J. Zhang
- 311.** Oxidation of vanillyl alcohol to vanillin: Comparing TEMPO reactions. **E. Zablowsky**, S. Iacobucci, C. Jaworek-Lopes
- 312.** Pd-catalyzed [3+2] cycloaddition between carbon dioxide and (2-(acetoxymethyl)-1-buten-3-yl)trimethylsilane. **A. D. Worthy**, G. E. Greco
- 313.** Phase vanishing reactions: Use of solid reagents and substrates. **N. M. Windmon**, V. Dragojlovic
- 314.** Preparations and biological evaluation of new anthrapyrazoles and bis-anthrapyrazoles. **K. A. Marshall**, H. Liang, X. Wu, B. B. Hasinoff, L. J. Guziec, F. Guziec Jr.
- 315.** Progress in the development of protecting group strategies for alkylguanidines. **R. Funkhouser**, **J. Yox**, J. A. Asper
- 316.** Reaction of acetylhydrazides with ketones: 2. Investigation of the effect of electron-withdrawing groups. A. E. Samek, **J. Sullivan**, D. L. Dillon
- 317.** Reactions of hexachloroacetone with primary diamines: Synthesis and characterization of N,N'-ethylenebistrichloroacetamide. **J. Bakalis**, J. H. Shin
- 318.** Reactivity of tris(trimethylsilyl)phosphite(TMSP): Reactions with chloroformates. L. Vargas, **J. D. Mammano**
- 319.** Regiospecific synthesis of 1-methyl-4-vinylimidazole. **B. Granger**, C. G. Collison, T. W. Smith
- 320.** Sensitized organic photooxidations on solid surfaces. **A. A. Andriello**, D. L. Dillon
- 321.** Solid-phase synthesis of rationally designed PPAR  $\delta$  ligands. **L. N. Aldrich**, **J. D. Dortch**, K. M. Bucholtz
- 322.** Solution conformation of longifolene. **V. Patel**, S. Karimi, G. Subramaniam
- 323.** Studies toward the total synthesis of a novel  $\gamma$ -lactone. **J. Smith**, W. T. Spencer III, M. Agosto, C. G. Collison
- 324.** Synthesis and biological evaluation of inhibitors of botulinum neurotoxin metalloprotease. **J. R. Widom**, P. Wipf
- 325.** Synthesis and biological studies of prekinamycin derivatives. K. S. Feldman, **K. V. Potts**

- 326.** Synthesis and characterization of substituted aryl acetic and propanoic acids. **N. A. Tavernier**, K. L. Gomes, C. A. Hansen
- 327.** Synthesis and characterization of thiol-containing nucleobases for DNA modification. **A. A. Lakha**, P. A. Bailey, C. E. Immoos
- 328.** Synthesis of biaryliodonium salts using m-CPBA as a versatile oxidant. J. Letessier, **S. M. Paradine**, B. Witulski
- 329.** Synthesis and reactions of 4-aryl-3-pyrrolin-2-ones. **K. P. White**, **S. J. P. Yoon-Miller**, **E. T. Pelkey**
- 330.** Synthesis, characterization, and conformational analysis of amido-ester and diamide liquid crystal twist agents. J. A. Rego, **M. C. Mellen**, C. Ha, M. L. Hughs
- 331.** Synthesis of <sup>13</sup>C-labeled chrysenes for soil sorption studies. **J. Noguiera**, L. Phun, P. Wang, C. Jaworek-Lopes
- 332.** Synthesis of acyloxy substituted dicarboxylic acids. **A. M. Pappas**, J. Joerres, C. A. Hansen
- 333.** Synthesis of anion binding capsules intended for aqueous solutions using olefin metathesis. **K. M. Yehl**, T. Fiehn, S. Kubik
- 334.** Synthesis of chlorambucil analogs. **A. Khetani**, G. Subramaniam, W. Saffran, S. Karimi
- 335.** Synthesis of non-β-lactam inhibitors for AmpC. R. A. Powers, **C. J. Davis**, R. L. Kubiak, U. J. Mishra, R. P. Smart, J. M. Tomlinson
- 336.** Synthesis of substituted tri-aryl amines for use as electrocatalysts. L. K. Steffen, **A. D. Pelle**, J. Koliani, M. Shinall, A. J. Fry

Section N

Unknown Site -- Unknown Room

### **Undergraduate Research Poster Session**

#### **Physical Chemistry**

*Cosponsored with PHYS, and SOCED*

N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

- 337.** Computational study of the keto/enol equilibrium in 2-fluoro-beta-diketones, (R1COCHF<sub>2</sub>COR<sub>2</sub> with R<sub>2</sub> = -CH<sub>3</sub>) and trifluormethyl-beta-diketones (R1COCH<sub>2</sub>COR<sub>2</sub> with R<sub>2</sub>

= -CF<sub>3</sub>) using semiempirical method AM1. J. G. Estevez, **M. E. Maldonado, M. Perez, L. Ramirez-Velez**

**338.** Electric field strength of the peptide helix macrodipole as measured by intramolecular stark spectroscopy. **E. Falcone**, M. Kubasik

**339.** Hydrogen/deuterium exchange studies of short, helical peptides in nonaqueous solvents. **M. Guildford**, M. Kubasik

**340.** Influence of hydrogen bonding on the organization of SAMs on nanoasperities. **N. Pearsall**, R. L. Jones, J. D. Batteas

**341.** Infrared and Raman spectroscopy of biomimetic catalysts for the production of hydrogen. **B. W. Caplins, T. A. Gutowski**, C. J. Stromberg, E. J. Heilweil

**342.** Measuring the ionization of salts and weak acids using freezing point depression measurements. **S. Yau**, P. Svoronos, D. M. Sarno, P. Irigoyen, G. Subramaniam

**343.** Nucleation behavior of coordination complexes in confined geometry. **K. Allain**, C. Luis, S. Lee

**344.** Photoinduced electron transfer in a quaterthiophene-amide-anthraquinone dyad. **A. Ferreira**, W. Xia, J. Wan, C. H. Chow, G. Jones II

**345.** Porous silicon with crystallographically defined macropores created by wet-chemical etching. **M. E. Dudley**, K. W. Kolasinski

**346.** Proton transport in water: Ab initio molecular dynamics simulations performed in the complete basis set limit. **T. C. Berkelbach**, H -S. Lee, M. E. Tuckerman

**347.** Survival of the fittest: Using a genetic mutation algorithm to design better fuel cell catalysts. **N. Froemming**, G. Henkelman

Section O

Unknown Site -- Unknown Room

## **Undergraduate Research Poster Session**

### **Polymer Chemistry**

*Cosponsored with PMSE, POLY, and SOCED*  
N. Bakowski, *Organizer, Presiding*

**2:30 - 4:30**

**348.** Development of reactive coatings for decontamination of chemical and biological hazards. **D. L. Wang**, F. Gu, H. M. Jensen, C. E. Immoos

**349.** Electrospinning mesoporous bridged organosilanes. **M. K. Finch**, K. Balkus Jr., H. A. Liu

**350.** Polyurethane synthesis for use with polydiacetylene strain sensors. **C. J. Pollock**, J. S. Kauffman, W. T. Pennington

**351.** Synthesis and characterization of porphyrins immobilized in a sol-gel matrix. **D. E. McCall**, P. Simon, D. Nguyen, C. H. Lisse, R. A. Richards

### **Many Faces of Chemistry: Merck Index Women in Chemistry**

*Sponsored by WCC, Cosponsored with CMA, PROF, and CHED*

### **MONDAY EVENING**

Section A

Unknown Site -- Unknown Room

#### **Sci-Mix**

C. Middlecamp, *Organizer, Presiding*

**8:00 - 10:00**

**62-67, 83, 85, 89, 91, 93, 97, 100-101.** See previous listings.

Section B

Unknown Site -- Unknown Room

#### **Successful Student Affiliates Chapters**

*Cosponsored with SOCED*

N. Bakowski, *Organizer, Presiding*

**8:00 - 10:00**

**352.** Fairmont State University chemistry in the community. **S. M. Boblett**, J. W. Moran, M. Damm, J. M. Carlile, M. J. Scanlon, A. Baur

**353.** Girls in science: An outreach program to encourage young women into STEM disciplines. **J. C. Deutsch**, T. L. Boethin, M. J. Bechaver, T. Holcomb, A. G. Cavinato

**354.** Growing green at Suffolk: A community approach. **A. Marchetti, K. B. Schallies, C. Guifarro, K. Krevolin, A. Marciniak**, K. Belanger, J. Urbanczyk

**355.** Science Society of CSUDH right on NCW themes. **T. Davis, C. DeCastro, C. Glenn, J. Osorio**, S. Papatheodorou

**356.** Texas Wesleyan University Summer Science Camp: Enhancing college awareness. D. A. Rodriguez, **C. R. Lewis**, R. E. Rodriguez

**357.** The many faces of chemistry: Undergraduate program at NORM '07. **J. C. Deutsch**, T. L. Boethin, M. J. Bechaver, T. Holcomb, A. G. Cavinato

**358.** University of Connecticut SAACS chapter activities. V. A. Williams, K. Longo, C. Walker, M. Ellis, I. L. Lagadic, T. A. Miller, **M. W. Peczuh**

### **Academic Employment Initiative**

*Sponsored by AEI, Cosponsored with Chemists with Disabilities, CHED, PROF, CEPA, CMA, CPT, SOCED, WCC, and PRES*

### **TUESDAY MORNING**

Section A

Unknown Site -- Unknown Room

### **Research in Chemical Education**

#### **Organic Chemistry, Student Conceptions, Skill Development and Metacognition**

B. Blake, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**359.** When push comes to shove: Student development of arrow-pushing formalism (APF) skills. **J. P. Anderson**, G. M. Bodner

**8:55** —**360.** Approaches in synthesis problem solving by sophomore organic chemistry students. **D. P. Cartrette**, P. M. Mayo

**9:15 —361.** Chemistry conceptions and misconceptions of undergraduate organic chemistry students. **J. M. Duis**, L. L. Jones

**9:35** — Intermission.

**9:45 —362.** Assessment of organic molecule stereochemistry through a formal interview. **T. A. Miller**, M. Enoch, E. Reed

**10:05 —363.** Meaning of organic chemistry. **G. Bhattacharyya**

**10:25 —364.** Graduate students' perspectives on chemists and chemistry. B. Walls, **G. Bhattacharyya**

**10:45** — Intermission.

**10:55 —365.** Combined effect of metacognitive activities in chemistry problem solving. **S. Sandi-Urena**, M. M. Cooper

**11:15 —366.** Multiple instructional representations for promoting concept learning and attitude for science learning. **I -Y. Cho, Y. Kang**

**11:35 —367.** Development of nanoconcept inventories: A big task! **A. K. Szeto, C. S. Cahill**, N. A. Unterman, L. J. Lauhon, G. Light, D. L. Drane, G. M. Bodner, J. S. Krajcik, E. A. Hagedorn

**11:55** — Concluding Remarks.

Section B

Unknown Site -- Unknown Room

## **Assessing Chemistry Laboratory Courses**

### **Non-Major and First Year Chemistry**

C. R. Ward, *Organizer*

J. Reeves, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —368.** Chemistry and engineering working together for assessment at Milwaukee School of Engineering. **A -M. L. Nickel, C. Barnicki**

**9:00 —369.** Assessing students' abilities to make connections: Improving the lab experience for non-majors. **E. D. Wischow**, G. M. Bodner

**9:25 —370.** Assessment of the effect of international TAs on student attitude and learning in a first year chemistry laboratory program. **W. L. Keeney-Kennicutt**

**9:50** — Intermission.

**10:00 —371.** Practical laboratory assessment. **C. Kieber**, C. R. Ward, J. Reeves

**10:25 —372.** Assessing online laboratory experiences. **K. C. McGill**, A. Turns, C. McTeer, A. M. Smith, O. M. Ezeokoli, M. Johnson

**10:50 —373.** Assessing online laboratories. **J. Civelli**, J. H. Reeves

Section C

Unknown Site -- Unknown Room

### **Undergraduate Chemistry for Liberal Arts Students**

*Cosponsored with WCC*

E. Del Federico, *Organizer*

J. M. Iriarte-Gross, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —374.** Engaging non-science majors to learn chemistry in a nontraditional way. **E. Gravely**

**9:00 —375.** Fostering student engagement via interdisciplinary themes: A liberal arts approach to chemistry for non-majors. **L. A. Porter Jr.**

**9:25 —376.** Linking non-majors chemistry to real-life and other disciplines. **A. B. Moore**

**9:50** — Intermission.

**10:00 —377.** Science and art during the intersession: Engaging the non-science major. **M. S. Leonard**

**10:25 —378.** Frontiers of science: A non-majors course experience for arts and communications students. **K. Kostecka**

**10:50 —379.** Mobile single-sided NMR spectroscopy in the chemistry curriculum of Liberal Arts and Fine Arts majors. **E. Del Federico**, S. Centeno, L. Isolani, J. Newman, A. Jerschow

**11:15** — Concluding Remarks.

Section D

Unknown Site -- Unknown Room

**Computers in Chemical Education, Past, Present and Future: Symposium in Honor of Professor Donald Rosenthal**

T. J. Zielinski, *Organizer*

G. R. Long, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —380.** Donald Rosenthal and the Committee on Computers in Chemical Education: A retrospective. **S. E. Van Bramer**

**9:00 —381.** Chemistry and Second Life: Teaching in a virtual world. **H. E. Pence**

**9:25 —382.** Evolution of computer use in physical chemistry: An enriching odyssey. **T. J. Zielinski**, G. R. Long

**9:50** — Intermission.

**10:00 —383.** Design of computer-based visualization and animation: What theories of learning apply? **E. M. Dorland**

**10:25 —384.** Feedback. **D. W. Brooks**

**10:50 —385.** Preservation of chemistry instructional software. **J. L. Holmes**, J. W. Moore

**From Peptide Bond Formation to Functional Proteins: Symposium in Honor of Ada Yonath**

*Sponsored by WCC, Cosponsored with Committee on International Activities, CHED, PROF, and BIOL*

**Going With the Information Flow: Chemical Abstracts Service 100th Anniversary Presidential Symposium**

*Sponsored by PRES, Cosponsored with HIST, CINF, and CHED*

**TUESDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

## **Research in Chemical Education**

### **Program Development and Pedagogy**

B. Blake, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —386.** Making the implicit explicit in the teaching of chemical equilibrium. **D. Yaron**, J. Davenport, M. Karabinos, J. G. Greeno, G. Leinhardt

**1:55 —387.** Formative assessment as a pedagogy in General Chemistry. **S. A. Jansen**, J. Ducette, J. Stull, J. Schiller, L. Roberts, T. Gilles

**2:15 —388.** The many faces of formative assessment in university science courses. **J. Stull**, S. A. Jansen, J. Schiller, J. Ducette, L. Roberts

**2:35** — Intermission.

**2:45 —389.** Blended learning in general chemistry, part I: Redesigning a course based on pedagogical literature. **I. Shibley**, K. E. Amaral

**3:05 —390.** Blended learning in general chemistry, part II: Outcomes of the redesigned course. **K. E. Amaral**, I. Shibley

**3:25 —391.** Recruitment and retention of chemistry majors: The Chemistry Scholars Program. **B. Blake**

**3:45** — Intermission.

**3:55 —392.** Workshop approach in physical chemistry: A preliminary evaluation. **L. B. Garmon**, F. A. Khan

**4:15 —393.** Attitudes of general chemistry I students to small group learning experience. **G. A. Brown Wright**

**4:35 —394.** Self-efficacy beliefs of women in chemistry: Influences and career effects. **M. L. Grunert**, G. M. Bodner

**4:55** — Concluding Remarks.

Unknown Site -- Unknown Room

## Assessing Chemistry Laboratory Courses

### Laboratory Assessment Beyond the First Year

C. R. Ward, *Organizer*

J. Reeves, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**395**. Challenges associated with national lab assessment programs. **T. A. Holme**, K. Murphy

**2:00** —**396**. Characterizing inquiry in the undergraduate chemistry laboratory: A rubric to aid curriculum development and evaluation. **M. Towns**, M. E. Fay, S. L. Bretz

**2:25** —**397**. Implementing the Science Writing Heuristic and POGIL strategies in the organic chemistry laboratory. **J. D. Schroeder**, T. J. Greenbowe

**2:50** — Intermission.

**3:00** —**398**. Hypothesis driven assessment of an NMR laboratory curriculum. **K. C. Earnheart**, K. T. Mueller

**3:25** —**399**. Assessment of reforms in the physical chemistry laboratory. J. D. Batteas, P. S. Cremer, **H. C. Gaede**, C. Hilty, S. W. North, D. H. Son

**3:50** —**400**. Design and evaluation of an integrated undergraduate research laboratory. **J. D. Lewis**, H. Altmiller, E. F. Healy, M. A. Kopecki-Fjetland

Section C

Unknown Site -- Unknown Room

## Undergraduate Chemistry for Liberal Arts Students

*Cosponsored with WCC*

E. Del Federico, *Organizer*

J. M. Iriarte-Gross, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**401**. Chemistry in the kitchen: A laboratory adventure for liberal arts students. **R. E. Rivera-Hainaj**

**2:00 —402.** CSI Wenham: Outreach to the community using forensic science. **D. J. Tshudy**

**2:25 —403.** Challenging course on medicinal chemistry for non-science majors. **M. G. Zysmilich**

**2:50 —** Intermission.

**3:00 —404.** Liberal arts students learn well through song, dance and drama. **L. J. Jones**

**3:25 —405.** Using learning communities to attract chemistry majors at a liberal arts college. **W. A. deProphetis**, M. C. Gelabert, N. P. Richardson

**3:50 —406.** Explorations in chemistry: A course for pre-service teachers. **N. J. Gardner**

**4:15 —** Concluding Remarks.

Section D

Unknown Site -- Unknown Room

### **Computers in Chemical Education, Past, Present and Future: Symposium in Honor of Professor Donald Rosenthal**

G. R. Long and T. J. Zielinski, *Organizers*

H. E. Pence, *Presiding*

**1:30 —** Introductory Remarks.

**1:35 —407.** Independent student use of internet resources to solve chemistry problems. **G. R. Long**, C. McCue

**2:00 —408.** Wikis, hyperglossaries and web literacy. **R. E. Belford**

**2:25 —409.** Electronic quizzes for quantum chemistry. **E. L. Harvey**, T. J. Zielinski

**2:50 —** Intermission.

**3:00 —410.** Teaching of force-field based modeling techniques through EMUDA modeling. **J. N. Grima**, R. Gatt, T. G. Chircop Bray

**3:25 —411.** Teaching organic reaction mechanisms using CAI. **J. H. Penn**, A. Al-Shammari

**3:50 —412.** The past, present, and future of spectral reference sources and software in academic teaching and research. **G. M. Banik**, L. Collins, M. Scandone

## Chemical Information Education Round Table

*Sponsored by CINF, Cosponsored with CHED*

### WEDNESDAY MORNING

Section A

Unknown Site -- Unknown Room

#### Research in Chemical Education

#### Laboratories, Skill Development and Student Conceptions

B. Blake, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**413**. Laboratory conundrum: A mixed-methods comparison of the traditional laboratory, inquiry, and classroom-based authentic research. **C. B. Russell**, M. R. Abraham, G. C. Weaver

**8:55** —**414**. Introducing advanced inorganic chemistry concepts in the high school classroom. **D. J. Collins**, N. P. Grove, N. P. Guerin, H -C. Zhou

**9:15** —**415**. Value of research: The next attempt for assessing professional growth. **W. J. F. Hunter**, G. M. Ferrence, S. L. Persson, R. House, T. B. Higgins, M. A. Jones, J. E. Otto

**9:35** — Intermission.

**9:45** —**416**. Solutions laboratory surprise. **J. L. Ealy Jr.**

**10:05** —**417**. Development of a tutorial instruction method to study student understanding of solutions. **S. A. Cunningham**, D. J. Wink, S. K. Brennan, M. Bertenthal, S. R. Goldman

**10:25** — Intermission.

**10:35** —**418**. The use of storyboards and student-constructed animation in college general chemistry. **J. T. Watkins**, V. M. Williamson, R. D. Macfarlane

**10:55** —**419**. A study of the impact of spatial skills training for non-engineering students. **P. Charlesworth**, H. Kedmon, S. Sorby, T. Drummer

**11:15** —**420**. The effect of macroscopic and particulate visualizations on student reasoning. **T.**

**Gilbreath, V. M.** Williamson, R. D. Macfarlane

**11:35 —421.** Visible spectroscopy and student perceptions of the material and immaterial worlds. **S. J. Donnelly**

**11:55** — Concluding Remarks.

Section B

Unknown Site -- Unknown Room

### **Writing to Learn: Using Writing to Engage Students in the Chemistry Classroom**

*Cosponsored with CINF*

I. Shibley, *Organizer*

L. Tribe, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35 —422.** Grading writing assignments without investing an inordinate amount of time. **I. Shibley**

**9:00 —423.** Controversial science: A writing assignment in general chemistry. **B. W. May**

**9:25 —424.** Learning curve: Reflections from exam rewrites. **K. Anderson**

**9:50** — Intermission.

**10:00 —425.** Development of content understandings using student journals in an elementary education majors course. **D. J. Wink**, M. Dianovsky

**10:25 —426.** Role of nontraditional texts in organic chemistry. **K. E. Amaral**

**10:50 —427.** Nanotechnology as a topic for teaching freshman writing. **A. L. Marsh**

**11:15** — Discussion.

**11:25** — Concluding Remarks.

Section C

Unknown Site -- Unknown Room

### **The Laboratory and First-Year Chemistry**

D. A. Katz, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**428.** 40-Plus years of laboratory experiments. **D. A. Katz**

**9:00** —**429.** Observing and measuring the macroscopic world in freshmen chemistry lab. **S. J. Donnelly**

**9:25** —**430.** Laboratory activities for a large, first-year chemistry course. **F. Garafalo**, E. DePierro, R. Toomey

**9:50** — Intermission.

**10:00** —**431.** Texas A&M University and the first year program: Investment, change and sustainability. **E. E. Simanek**

**10:25** —**432.** Creative scientific inquiry experience in first year chemistry. **T. R. Brewer**

**10:50** —**433.** Incorporating research into the first-year chemistry laboratory. **J. Ford**, T. A. Newton, C. K. Prudenté

Section D

Unknown Site -- Unknown Room

**Computers in Chemical Education, Past, Present and Future: Symposium in Honor of Professor Donald Rosenthal**

T. J. Zielinski, *Organizer*

G. R. Long, *Organizer, Presiding*

**8:30** — Introductory Remarks.

**8:35** —**434.** PC to PC communications: A portal to science. E. Mercado, L. Gonzalez, E. Ferrer, **M. E. Castro**

**9:00** —**435.** Using Web 2.0 in a student-centered approach to teach quantum mechanics to graduate students. **T. A. Baker**, A. Aspuru-Guzik

**9:25** —**436.** Revitalizing the communication of chemical information. **J. Corkery**, K. Schmidt, B. Kelley, R. Tolbert, A. Nicholls

**9:50** —**437.** Geometry prediction using Microsoft Excel. **R. A. Gross Jr.**

**10:15** — Intermission.

**10:25** —**438**. Illustrating dynamic chemical processes with Microsoft Excel. **T. S. Kuntzleman**

**10:50** —**439**. A neophyte's venture into computerland teaching: An online GOB course. **C. E. MacGowan**

**11:15** —**440**. Student-designed computer learning modules for general chemistry. M. Al Sadah, M. Al-Saffar, J. Al Thani, **M. M. Bader**

## **WEDNESDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **Research in Chemical Education**

### **Tutorials, Assessment and Learning Styles**

B. Blake, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**441**. Quantitative analysis of a web-based math tutorial for general chemistry and the student response. **M. D. Barker**, J. Heppert, B. A. Barker

**1:55** —**442**. Feedback and attitude study of online web-based learning (OWL) in first semester general chemistry. **T. L. Sarvela**, V. M. Williamson, R. D. Macfarlane

**2:15** —**443**. The second generation of a math diagnostic tool for introductory chemistry. **C. A. Morse**

**2:35** — Intermission .

**2:45** —**444**. An effective strategy for predicting success in general chemistry: Proper placement of first-year students. **B. Blake**, K. A. Chambers

**3:05** —**445**. Evaluating threats to the validity of a particulate multiple-choice gas question. **M. J. Sanger**

**3:25** —**446**. Assessing the role of learning-style preferences on three different measures of learning – recall, conceptualization, and transfer. **J. L. Hilsenbeck-Fajardo**, J. P. Suits, R. M. Hyslop

**3:45** — Intermission.

**3:55** —**447**. Qualitative inquiry into the effects of visualization on high school chemistry students' learning process of molecular structure. S. R. Vaidya, **S. Deratzou**

**4:15** —**448**. General chemistry education on the border: A case study from El Paso community college. **S. H. Abbas**

**4:35** — Concluding Remarks.

Section B

Unknown Site -- Unknown Room

### **Writing to Learn: Using Writing to Engage Students in the Chemistry Classroom**

*Cosponsored with CINF*

L. Tribe, *Organizer*

I. Shibley, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35** —**449**. Overcoming student resistance to writing with CPR™. **W. L. Keeney-Kennicutt**, A. B. Gunersel, N. Simpson

**2:00** —**450**. Students writing for students: Peer-reviewed class notes in general chemistry courses. **L. Tribe**

**2:25** —**451**. Reading, writing, and (web) roving: Student engagement through short focused assignments. **M. E. Schott**

**2:50** — Intermission.

**3:00** —**452**. Scientific argument exhibited by students using the Science Writing Heuristic format for laboratory notebooks. **A. Choi**, B. M. Hand, T. J. Greenbowe

**3:25** —**453**. More than lab reports: Integrating information literacy and writing-to-learn in organic chemistry labs. **T. R. Turner**, G. B. Blalock, C. Schuetz

**3:50** —**454**. Investigational writing exercises for undergraduate biochemistry experiments. **P. J. Higgins**

**4:15** — Discussion.

**4:25** — Concluding Remarks.

Unknown Site -- Unknown Room

### **The Laboratory and First-Year Chemistry**

D. A. Katz, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —455.** Statistical techniques as an integral part of first-year chemistry laboratory classes. **J. N. Grima**, R. Gatt

**2:00 —456.** Multiple uses of instrumentation in the general chemistry program. **C. R. Pulliam**, W. F. Pfeiffer

**2:25 —457.** Project based advanced general chemistry laboratory. **I. Black**

**2:50** — Intermission.

**3:00 —458.** Rethinking introductory undergraduate organic laboratory. **G. M. Gawlik**, J. T. Hensler, B. P. Coppola

**3:25 —459.** Laboratory experiments and activities for the 21st century. **D. A. Katz**

Unknown Site -- Unknown Room

### **Green Chemistry Resources and Activities**

J. M. Smist, *Organizer, Presiding*

**1:30** — Introductory Remarks.

**1:35 —460.** "Green" learning activities in the general chemistry curricula. **S. J. Donnelly**

**2:00 —461.** Preparation of biodiesel using microwave heating in an undergraduate organic chemistry laboratory course. **T. A. Miller**, N. E. Leadbeater

**2:25 —462.** Extension of an undergraduate green organic chemistry experiment: Asymmetric reduction of carbonyls with polymethylhydrosiloxane (PMHS) and a chiral fluoride catalyst. **K. E. O'Brien**, D. K. Wicht

**2:50** — Intermission.

**3:00** —**463.** Green chemistry in the organic lab: An ongoing process at Siena College. **A. B. Todaro**, M. R. O'Brien, L. Ritchie

**3:25** —**464.** Engine emissions with biodiesel fuels and biodiesel blends. **B. W. May**

## **THURSDAY MORNING**

Section A

Unknown Site -- Unknown Room

### **General Papers**

#### **Animation and Technology in Chemistry Curriculum**

T. A. Miller, *Organizer*

M. L. Dean, *Presiding*

**8:00** — Introductory Remarks.

**8:05** —**465.** QSAR World: A free online resource dedicated to Quantitative Structure-Activity Relationship modeling. **S. K. Dogra**, A. Parkhe

**8:25** —**466.** Animation makes college chemistry more animated. Y. Hu, **L. Hu**

**8:45** —**467.** Communication for the 21st century: Podcasting in the chemistry lab. **W. M. Heiserman**, B. Dixon, P. Bueno

**9:05** —**468.** Fertile fodder for research. **L. J. Jones**

**9:25** — Intermission.

**9:35** —**469.** Five years of computer based technology in the general chemistry classroom. **G. D. Phelan**

**9:55** —**470.** K-20+ Expository programs: Enhancing chemistry education. **J. López-Garriga**, R. Camacho II, S. Mercado

**10:15** —**471.** Self-tutoring for advanced problems in freshman chemistry. **G. Subramaniam**, J. L. Zambrana, H. D. Gafney

Section B

Unknown Site -- Unknown Room

## General Papers

### Group Work and Integrated Curriculum

T. A. Miller, *Organizer*  
C. Cardillo, *Presiding*

**8:00** — Introductory Remarks.

**8:05** —**472.** Collaborative experiment between environmental chemistry and instrumental analysis laboratory courses. **T. A. Jackman**

**8:25** —**473.** Entropy first: A novel, integrated, molecular approach to the physical chemistry curriculum. **S. F. Cartier**

**8:45** —**474.** Group work between students in different science courses: General chemistry and pharmacy. **T. A. Miller**, E. J. Neth, R. H. Bogner

**9:05** — Intermission.

**9:15** —**475.** Integrating biology and chemistry in a first-semester college course. **G. B. Gillis**, A. L. Springer, S. M. Decatur

**9:35** —**476.** Peer led team learning (PLTL) in organic chemistry laboratory. **A. Fraiman**, V. Curtis-Palmer

**9:55** —**477.** Science from the S.T.A.R.T.: Integrating primary scientific literature into the 2-year community college curriculum. **S. Kolchens**

Section C

Unknown Site -- Unknown Room

### Visualization and Learning Chemistry

L. J. Jones, *Organizer, Presiding*

**8:00** — Introductory Remarks.

**8:05** —**478.** Bring chemistry alive in the classroom. **J. L. Holmes**, W. F. Coleman, J. J. Jacobsen, J. W. Moore

**8:25 —479.** Using animated flowcharts to teach organic reactions to the non-science major students at Clayton State University. **S. F. Hornbuckle**

**8:45 —480.** Using PowerPoint animations to illustrate biochemical processes. **S. S. Zimmerman**

**9:05** — Intermission.

**9:15 —481.** Visualization of hydrogen bonding in the water dimer. **M. Ayoub**

**9:35 —482.** Visualization of close-packed crystal structures using both primitive and non-primitive unit cells. **R. C. Rittenhouse**, L. M. Soper, J. A. Hawkins, J. L. Rittenhouse

**9:55 —483.** Visualization of fluorescence and phosphorescence using demos, slides, hand motions and song. **K. Fallo**, G. DeMenna

**10:15** — Intermission.

**10:25 —484.** Lecture demonstrations that increase student understanding. **P. M. Todebush**

**10:45 —485.** Probing the effect of visual and kinesthetic teaching methodologies on middle school science students. **K. T. Powell**, K. L. Wooley, C. J. Anderson

**11:05 —486.** Concrete models and physical movement help students visualize. **L. J. Jones**

**11:25** — Concluding Remarks.

Section D

Unknown Site -- Unknown Room

### **Process-Oriented Guided Inquiry Learning (POGIL)**

#### **Introduction and General Chemistry**

R. S. Moog, *Organizer*

F. J. Creegan, *Presiding*

**8:00** — Introductory Remarks.

**8:05 —487.** POGIL and the POGIL project. **R. S. Moog**

**8:25 —488.** POGIL as a model for general education in chemistry. **S. E. Van Bramer**

**8:45 —489.** POGIL and quantitative literacy: Combining two learning initiatives. **C. Coolidge**

**9:05** — Intermission.

**9:15** —**490**. Initial assessment of POGIL-IC activities. **D. L. Slusher**, J. A. Goodwin, A. M. Hitt, T. R. Gilbert, D. M. Hanson

**9:35** —**491**. Retention and achievement among underprepared students using POGIL in a two-semester general chemistry course. **B. D. Barker**, D. Freistroffer, L. Heasley

**9:55** —**492**. Discovery learning in large introductory chemistry courses at UMBC. **W. R. LaCourse**, T. Carpenter, D. Hamilton, M. Perks

**10:15** — Intermission.

**10:25** —**493**. General chemistry POGIL in a learning community: Math background and outcomes. **H -W. Kim**

**10:45** —**494**. Implementing POGIL: One step at a time. **J. L. Sarquis**

**11:05** —**495**. Overcoming fear of perceived hurdles in implementation of POGIL. **C. M. Partigianoni**

**11:25** — Panel Discussion.

## **THURSDAY AFTERNOON**

Section A

Unknown Site -- Unknown Room

### **General Papers**

T. A. Miller, *Organizer, Presiding*

**1:00** — Introductory Remarks.

**1:05** —**496**. Adapting research for laboratory experiments in undergraduate environmental chemistry courses. **J. F. Hauri**

**1:25** —**497**. Drug design for HIV-1 integrase with an undergraduate researcher. **J. B. Ealy**, S. Aggarwal

**1:45** —**498**. Pros and cons of microwave-assisted organic synthesis in the undergraduate organic chemistry laboratory. **C. B. McGowan**, N. E. Leadbeater

2:05 — Intermission.

2:15 —499. Research-inspired organic chemistry experiments for the undergraduate laboratory: Suzuki-Miyaura and Buchwald-Hartwig coupling reactions. **A. L. Kohnen**, M. Twardowski, R. L. Danheiser

2:35 —500. Undergraduate laboratory renaissance. **R. W. Gurney**

Section B

Unknown Site -- Unknown Room

### General Papers

T. A. Miller, *Organizer*

M. L. Dean, *Presiding*

1:00 — Introductory Remarks.

1:05 —501. Candy engineering: A module for teaching fifth graders mass, density, and volume. **M. Birnkrant**, P. Blount, E. Fromm, A. K. Fontecchio

1:25 —502. Densities and compositions of pennies. **D. C. Haagenson**

1:45 — Intermission.

1:55 —503. Enhancing student learning in general chemistry: A case study from El Paso community college. **S. H. Abbas**

2:15 —504. Investigation on the relationships between gender, mental capacity, reasoning ability, and chemistry achievement. E. Hacieminoglu, **E. Alp**, H. Ertepinar

2:35 —505. Post-Mendeleevian evolution of the periodic table. **G. Katz**

2:55 — Intermission.

3:05 —506. Project Crossover: Early interest in chemistry. **A. V. Maltese**, R. H. Tai

3:25 —507. Theory of electrical conductivity. **Y. Gankin**, V. Gankin

3:45 —508. Theory of metallic bonding. **Y. Gankin**, V. Gankin

Section C

Unknown Site -- Unknown Room

## General Papers

T. A. Miller, *Organizer*  
C. Cardillo, *Presiding*

**1:00** — Introductory Remarks.

**1:05 —509.** Exploring relationships among students' learning approach and motivational goals. **E. Hacieminoglu**, O. Yilmaz Tuzun, H. Ertepinar

**1:25 —510.** Nanochemistry the second time around: Changes made and lessons learned. **M. W. Pitcher**

**1:45 —511.** Nanoscience and engineering high school research internship program at the University of Alabama. **D. E. Nikles**, G. B. Thompson

**2:05** — Intermission.

**2:15 —512.** Student-centered approach to teaching biochemistry. **L. D. Bastin**, **A. Nagengast**, R. W. Morris

**2:35 —513.** Discovering the glycolytic pathway with an inexpensive microarray laboratory lesson. **W. D. Bonds Jr.**

**2:55 —514.** Incorporation of interdisciplinary student-directed research projects in biochemistry/biotechnology laboratories. C. Ispas, J. Warner, J. Njagi, **S. Andreescu**

**3:15** — Intermission.

**3:25 —515.** Numeracy project: Analysis of quantitative literacy and achievement in chemistry. **T. Neal**, C. Geary, D. Weittenhiller

**3:45 —516.** Numeracy project: Using assessment to improve quantitative literacy. **C. Geary**, T. Neal

**4:05** — Concluding Remarks.

Section D

Unknown Site -- Unknown Room

**Process-Oriented Guided Inquiry Learning (POGIL)**

**Implementations Across the Curriculum**

R. S. Moog, *Organizer*  
S. E. Van Bramer, *Presiding*

**1:00** — Introductory Remarks.

**1:05** —**517.** POGIL in the laboratory. **F. J. Creegan**

**1:25** —**518.** POGIL with a diverse student population. **J. Collins**

**1:45** —**519.** Do minority students benefit from a change to active learning? **A. Straumanis**

**2:05** — Intermission.

**2:15** —**520.** Hands on, minds on: Solutions for inquiring minds. **B. Howson**, D. Krone

**2:35** —**521.** Development and implementation of POGIL activities for allied-health biochemistry courses. **P. S. Workman**

**2:55** —**522.** To ask or not to ask...that is the question: Using clickers to create a safer chemistry learning environment. **D. W. Parkin**

**3:15** — Intermission.

**3:25** —**523.** POGIL in the biochemistry classroom. **L. M. Watkins**

**3:45** —**524.** Preparation and use of analytical POGIL and group exams in the second-year quantitative analysis course. **L. D. Margerum**

**4:05** — Panel Discussion.