

- 10:30 2. Neil Bartlett: A lifetime of accomplishment. **K. Kostecka**  
 11:00 3. History of microencapsulation. **C. Thies**

#### MONDAY AFTERNOON

##### Section A

Marriott Downtown  
Solitude

#### Science History Study Tours: Global Perspectives

M. V. Orna, *Organizer, Presiding*

- 2:30 4. Chemistry is everywhere. **M. V. Orna**  
 2:50 5. "You can't miss it": A pictorial revisit of the John Wotiz tour of 1985. **L. Westmoreland**  
 3:15 6. In the footsteps of the great: Exploring cathedrals of science. **Y. Twomey**  
 3:40 7. Tycho Brahe, the island of Hven, and the Rundetaarn. **D. A. Katz**  
 4:00 Intermission.  
 4:10 8. The German nuclear reactor at Haigerloch. **D. A. Katz**  
 4:30 9. A virtual chemical history tour of ancient Israel. **Z. C. Koren**  
 4:55 10. Flights of fancy: Study tours off the beaten path. **C. J. Giunta**

#### TUESDAY MORNING

##### Section A

Marriott Downtown  
Salon C

#### Henry Eyring, His Science and His Legacy

J. M. Hayes, *Organizer, Presiding*

- 8:00 Introductory Remarks.  
 8:10 11. Henry Eyring: A model life. **S. M. Kuznicki**  
 8:45 12. Henry Eyring's role in U. S. theoretical chemistry. **J. Simons**  
 9:20 13. Henry Eyring and "Quantum Chemistry". **G. D. Patterson**  
 9:55 Intermission.  
 10:10 14. Henry Eyring: Mentor, models of research and emerging protein. **D. W. Urry**  
 10:45 15. Henry Eyring: A mentor and a colleague. **J. Michl**  
 11:20 16. Henry Eyring: Statistical mechanics and dynamics, significant structure theory. **D. J. Henderson**  
 11:55 17. Henry Eyring: A model for young chemists. **J. M. Hayes**

#### TUESDAY AFTERNOON

**ACS Award for Encouraging Women into Careers in the Chemical Sciences: Symposium in Honor of Mary F. Singleton**  
 Sponsored by WCC, Cosponsored by HIST<sup>†</sup>, PROF, and CEPA

### I&EC

## Division of Industrial & Engineering Chemistry

J. T. Ciszewski, *Program Chair*

#### SUNDAY MORNING

##### Section A

Salt Palace Convention Center  
355 D

#### General Papers

J. T. Ciszewski, *Organizer*

- 8:30 Introductory Remarks.  
 8:35 1. A new 2-D carbon material graphene for high performance of biosensing. **S. Alwarappan, C-Z. Li**  
 8:55 2. Analysis of process condition on synthesis of decaglycerol monooleate. **J. E. Tirano, H. R. Zea**

- 9:15 3. Characterization of a diesel oxidation catalyst-conversion performance and materials analysis of fresh and engine-aged catalysts. **H. J. Gysling**, T. Iacubucci, D. Fronheiser, J. R. Monnier, D. Repp, D. A. Blom, S. Ma, A. J. Kotrba, A. Yetkin, T. P. Gardner, J. Popovich, R. Shotwell

- 9:35 4. Compound selection for battlefield testing. **M. A. Hanning-Lee**, B. Rowland, G. Bottelberghe, K. Gandhi, F. V. Hanson, J. Walther, L. Wurster, S. Bowen, R. Jablonski, P. L. Abercrombie, A. B. Butrow, K. Conerly, W. Shircliffe, J. Kaufman, D. Jolley

- 9:55 Intermission.  
 10:15 5. Measurement and modeling of vapor interactions with materials. **M. A. Hanning-Lee**, B. Rowland, H. D. Thomas, M. Giessing, L. P. Adair, G. Siddoway, G. Bottelberghe, J. Kaufman, D. Jolley

- 10:35 6. Experimental characterization and population balance modeling of a polymorph transformation. **J. Corniel**, M. Mazzotti

- 10:55 7. Nanoparticle milling and polymer encapsulation in supercritical carbon dioxide mixtures. **S. M. Paap**, M. S. Wolfe, J. W. Tester

- 11:15 8. New insights into the structure and hydration chemistry of white Portland and Oilwell cements by solid state NMR. **A. Rawal**, B. Smith, B. F. Chmelka

##### Section B

Salt Palace Convention Center  
355 B

#### Nanotechnology and the Environment: Emphasis on Green Nanotechnology

Cosponsored by INOR and NANO

B. Karn, *Organizer*

- 8:30 Introductory Remarks.  
 8:35 9. Progress in green nanotechnology and this symposium. **B. Karn**  
 9:05 10. U.S. EPA: Nanotechnology green applications and other environmental benefits. **N. F. Savage**  
 9:35 11. ONAMI and the safer nanomaterials and nanomanufacturing initiative. **S. Rung**  
 10:05 Intermission.  
 10:25 12. Myth-busting: Nanoparticle behavior in the environment. **M. R. Wiesner**, G. V. Lowry  
 10:55 13. Nano-myth-busting: Common misconceptions regarding nanomaterial interactions with organisms and their toxicity. **G. V. Lowry**, M. R. Wiesner, E. A. Casman  
 11:25 14. Rethinking environmental risk assessment for nanomaterials. **E. A. Casman**, G. V. Lowry, M. R. Wiesner

**Chemistry for Catalyst Synthesis**  
 Sponsored by CATL (probationary),  
 Cosponsored by COLL and I&EC

**Polymers and Carbon Nanotubes Tutorial on Carbon Nanotubes** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

#### SUNDAY AFTERNOON

##### Section A

Salt Palace Convention Center  
355 D

#### General Papers

J. T. Ciszewski, *Organizer*

- 1:30 15. Novel vapor-phase carbonylation of dimethoxymethane over acid zeolites. **F. E. Celik**, T.-J. Kim, A. T. Bell  
 1:50 16. One-component, switchable, neutral to ionic liquid solvents derived from siloxylated amines. **V. Blasucci**, C. Diek, H. A. Huttenhower, E. A. John, V. Llopis-Mestre, P. Pollet, C. A. Eckert, C. L. Liotta

† Cooperative Cosponsorship

- 2:10 17. Optimizing process conditions for scale-up of a pharmaceutical intermediate. **M. T. Drexler**  
 2:30 Intermission.

- 2:50 18. Solvent fractionation of switchgrass. **C. J. O'Lenick**, J. J. Bozell, T. G. Fials, S. K. Black

- 3:10 19. TAALLS: Tunable aryl-alkyl ionic liquids. **T. Strassner**, S. Ahrens  
 3:30 20. The catalytic evaluation of ZnO in the transesterification reaction of palm oil to biodiesel by heterogeneous catalysis. **D. Barrera Jr.**, G. Camargo Vargas, M. A. Molano, J. C. Moreno Pirajan, L. Giraldo

- 3:50 21. Using design of experiments to optimize polycrystalline diamond compact (PDC) manufacturing. **W. D. Kappel**, J. Wiggins  
 4:10 Concluding Remarks.

##### Section B

Salt Palace Convention Center  
355 B

#### Nanotechnology and the Environment: Emphasis on Green Nanotechnology Sustainable Synthesis of Nanomaterials

Cosponsored by INOR and NANO

C. J. Murphy, *Organizer*

- 1:00 Introductory Remarks.  
 1:05 22. Green synthesis and applications of functional metal oxide nanostructures. **S. S. Wong**  
 1:35 23. Large-scale synthesis of uniform-sized nanoparticles via heat-up process. **T. Hyeon**, S. G. Kwon, K. An, T. Yu  
 2:05 24. Green strategies for the synthesis of metal nanocrystals and bulk solids. **R. E. Schaak**  
 2:35 Intermission.  
 2:55 25. Synthesis and processing of metal, alloy and core-shell nanoparticles. **C.-J. Zhong**  
 3:25 26. Shape-controlled synthesis of palladium nanocrystals in aqueous solutions. **Y. Xia**  
 3:55 27. New synthetic approaches to functional gold nanostructures. **E. Zubarev**

**Chemistry for Catalyst Synthesis**  
 Sponsored by CATL (probationary),  
 Cosponsored by COLL and I&EC

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

**Polymers and Carbon Nanotubes Dispersion and Functionalization**  
 Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

#### MONDAY MORNING

##### Section A

Salt Palace Convention Center  
355 D

**Nanoscale Materials in Chemistry: Environmental Applications: In Honor of Professor Klambunde, I&EC Division Fellow**  
 Cosponsored by NANO

S. Lee and L. E. Erickson, *Organizers*

- 8:30 Introductory Remarks.  
 8:35 28. Size-dependent properties and surface chemistry of oxide nanomaterials in environmental processes. **V. H. Grassian**  
 9:05 29. Mesoporous titanium dioxide: To order or not to order? **R. T. Koodali**  
 9:30 30. Metal oxides with 111 surfaces and their catalytic properties. **R. M. Richards**, J. Hu, K. Zhu, L. Chen  
 9:55 Intermission.  
 10:05 31. Spectroscopic observation of molecular diffusion through high area sorbent powders: A new diffusion measurement technique involving IR spectroscopy. **J. T. Yates Jr.**, S. Kim, X. Wang, C. Buda, M. Neurock, O. B. Koper  
 10:35 32. Environmental applications of nanocrystalline metal oxides. **O. B. Koper**, A. Iseli, D. Jones, S. Winecki

- 11:00 33. Visible light active photocatalysts and biocides based on transition metal-titanium dioxide and silicon dioxide aerogels. **K. J. Klambunde**, J. Haggstrom, D. Harnal, G. L. Marchin, K. Kalebailla, S. Baker, C. M. Aikens

##### Section B

Salt Palace Convention Center  
355 B

**Selective Oxidation of Alkanes & Alkenes: In Honor of Madan M. Bhasin, I&EC Division Fellow**

J. J. Spivey and S. F. Mitchell, *Organizers*

- 8:55 Introductory Remarks.  
 9:00 34. Oxidation catalysis from metal oxides to gold. **H. Kung**  
 9:30 35. Nanostructured carbide and nitride catalysts. **L. T. Thompson**  
 10:00 36. Novel catalytic approaches for the oxidative dehydrogenation of ethane. **J. A. Lercher**  
 10:30 Intermission.  
 10:45 37. Oxidation reactions in the synthesis of intermediate and fine chemicals using environmentally benign oxidants and the right reactor system. **W. F. Hoelderich**  
 11:15 38. Understanding the origins of the catalytic behavior in supported gold catalysts. **A. K. Datye**  
 11:45 39. Catalysis by design: A status report. **A. T. Bell**

**Chemistry for Catalyst Synthesis**  
 Sponsored by CATL (probationary),  
 Cosponsored by COLL and I&EC

**Green Chemistry** Sponsored by YCCC, Cosponsored by CHAS, I&EC, CEI, INOR, and ORGN

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

**Polymers and Carbon Nanotubes Processing of Composites** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

#### MONDAY AFTERNOON

##### Section A

Salt Palace Convention Center  
355 D

**E. V. Murphree Award in Industrial and Engineering Chemistry: Symposium in Honor of Milorad P. Dudukovic Kinetics and Catalysis**

P. L. Mills, *Organizer*

- 1:00 Introductory Remarks.  
 1:05 40. Fundamental studies of bimetallics for oxygenate reforming. **O. Skoplyak**, J. G. Chen, **M. A. Barteau**  
 1:25 41. Hydrogenolysis of polyols and carboxylic acids: Challenges in catalysis and reaction engineering. **R. V. Chaudhari**, D. Roy, B. Subramanian  
 1:45 42. Insight into catalysis by novel solid superacids. **G. D. Yadav**  
 2:05 Intermission.  
 2:20 43. Sintering dynamics of metal oxide nanoparticles. **A. R. Rammoohan**, Y. Jiang  
 2:40 44. Pore accessibility in disordered nanoporous materials: Experiment, theory and simulation. **S. K. Bhatia**  
 3:00 45. Bridging the pressure gap: Catalytic oxidation at steady-state and nonsteady-state conditions. **J. T. Gleaves**, X. Zheng, G. S. Yablonsky, P. L. Mills

**Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.**

3:20 **46.** Nature inspired chemical engineering and its application to the multiscale design of catalytic processes.  
**M-O. Coppens**

#### Section B

Salt Palace Convention Center  
355 B

**Nanoscale Materials in Chemistry: Environmental Applications: In Honor of Professor Klabunde, I&EC Division Fellow**  
Cosponsored by NANO

L. E. Erickson and S. Lee, *Organizers*

- 1:15 **47.** Decontamination of chemical warfare agents with nanosize metal oxides.  
**G. W. Wagner**
- 1:40 **48.** Nanoparticle solutions.  
**C. M. Sorensen**
- 2:05 **49.** Comparative pulmonary toxicity of nanomaterials. **J. A. Pickrell**, K. Dhakal, L. E. Erickson, K. J. Klabunde, R. G. Maghirang, O. B. Koper, M. Dhakal, D. van der Merwe, F. W. Oehme
- 2:30 **Intermission.**
- 2:40 **50.** Advanced lubricant additives of DDP-functionalized molybdenum sulfide nanoparticles. **D. Demydov**, A. P. Malshe, A. Acharyu, P. McCluskey
- 3:05 **51.** Heterogeneous photocatalysis with silver halide photocatalysts for environmental remediation. **D. B. Hamal**, K. J. Klabunde
- 3:30 **52.** Visible light photocatalytic activity of environmentally friendly TiO<sub>2</sub>-SiO<sub>2</sub>-Mn aerogels. **K. Kalebaila**, K. J. Klabunde
- 3:55 **53.** Environmental applications of metal-core oxide-shell nanoparticles.  
**P. G. Tratnyak**
- 4:20 **Concluding Remarks.**

#### Section C

Salt Palace Convention Center  
355 E

**Selective Oxidation of Alkanes & Alkenes: In Honor of Madan M. Bhasin, I&EC Division Fellow**

J. J. Spivey and S. F. Mitchell, *Organizers*

- 1:30 **Introductory Remarks.**
- 1:35 **54.** Catalytic nanoliths. **P. Stair**
- 2:05 **55.** Gold and gold palladium catalysts.  
**G. J. Hutchings**
- 2:35 **56.** Selective oxidation of ethylene to ethylene oxide and of methane to ethylene and ethane. **M. Bhasin**

#### Catalysis for Cellulosic Feedstock

**Conversion** Sponsored by CATL (probationary), Cosponsored by CELL, COLL, FUEL, I&EC, and PETR

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

**Polymers and Carbon Nanotubes Properties of Composites** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

#### MONDAY EVENING

##### Section A

Salt Palace Convention Center  
Hall 5

**Joe Breen Green Chemistry Student Poster Session**

M. Kirchhoff and K. Parent, *Organizers*

##### 8:00–10:00

57. Joe Breen: The heart and soul of green chemistry. **M. M. Kirchhoff**, K. E. Parent
58. Green route to rod-shaped gold nanoparticles using soy lecithin. **B. R. Ayres**, S. M. Reed
59. Isocyanates using procedures not involving phosgene. **R. Suarez Bertoa**, B. Rindone, G. Galliani, F. Salui, A. Terraneo

60. Determining the feasibility of producing biodiesel from waste vegetable oil through cost-benefit and SWOT analyses.  
**A. Bragan**, E. J. Brush

61. Ionic liquids in green chemistry.  
**M. D. Brown II**, P. F. Brandt
62. Greening of copper catalyzed atom transfer radical addition (ATRA) in the presence of reducing agents. **W. T. Eckenhoff**, T. Pintauer
63. Development of 1H-NMR and ASTM-based methods to evaluate the analytical purity of biodiesel produced from waste vegetable oils. **J. Martell**, E. J. Brush
64. The synthesis of two spermidine analogs using various ionic liquids. **K. Merancy**, F. C. Mayville Jr.
65. Hydrolysis of biomass samples in subcritical water and carbonic acid.  
**L. Ngo Tenlep**, D. E. Raynie

**Sci-Mix** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, and PETR

#### TUESDAY MORNING

##### Section A

Salt Palace Convention Center  
355 D

**E. V. Murphree Award in Industrial and Engineering Chemistry: Symposium in Honor of Milorad P. Dudukovic Multiphase Reaction Engineering: Fundamentals and Process Applications**

P. L. Mills, *Organizer*

- 8:00 **Introductory Remarks.**
- 8:05 **66. Award Address** (E. V. Murphree Award in Industrial and Engineering Chemistry, sponsored by ExxonMobil Research and Engineering Company). Multiphase reactors: Selection, operation and scale-up. **M. P. Dudukovic**
- 8:35 **67.** Chemical microreaction engineering – quo vadis? **J. J. Lerou**
- 8:55 **68.** Structure in gas-liquid-solid reactors. **M. Kreutzer**, C. Kleijn, F. Kapteijn, R. van Ommen
- 9:15 **Intermission.**
- 9:30 **69.** Dynamics of fines deposition in trickle-bed and monolith reactors, and alternating semifluidized beds. **F. Larachi**
- 9:50 **70.** Fouling tolerant reactor concepts and commercial applications. **R. Gupta**
- 10:10 **71.** Radiation: Shine some light on multiphase reactors. **R. Mudde**
- 10:30 **72.** Experimental advances in multiphase flow hydrodynamics. **P. L. Mills**

##### Section B

Salt Palace Convention Center  
355 B

**Nanotechnology and the Environment: Emphasis on Green Nanotechnology Sustainable Synthesis of Nanomaterials**  
Cosponsored by INOR and NANO

S. S. Wong, *Organizer*

- 8:00 **Introductory Remarks.**
- 8:05 **73.** Greener nanosyntheses: Opportunities to cooptimize performance, efficiency and safety in the production of nanoscale materials. **J. E. Hutchison**, L. C. McKenzie, S. E. Lohse
- 8:35 **74.** Understanding the stability and catalytic activity of nanoparticles in ionic liquids. **R. W. J. Scott**, P. Dash
- 9:05 **75.** Using green chemistry and supercritical carbon dioxide to produce nanomaterials. **P. Charpentier**

**The official technical program for the 237th National Meeting is available online at [oasys2.confex.com/acs/237nm/techprogram/](http://oasys2.confex.com/acs/237nm/techprogram/).**

9:35 **Intermission.**

- 9:55 **76.** Highly sensitive molecular sensing on optimally modified graphene monolayers. **J. Russell**, P. Kral
- 10:25 **77.** Biomimetic evaporative co-assembly method for highly-ordered inverse opal films. **J. Aizenberg**, B. Hatton, L. Mishchenko
- 10:55 **78.** Development of virus based nanomaterials and applications. **Q. Wang**
- 11:25 **79.** Templated assembly of virus-like particles and applications. **B. Dragnea**

**George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend Catalysis and Reaction Mechanisms**  
Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

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**Polymers and Carbon Nanotubes Applications** Sponsored by POLY, Cosponsored by COLL, I&EC, PHYS, PMSE, and NANO

#### TUESDAY AFTERNOON

##### Section A

Salt Palace Convention Center  
355 D

**E. V. Murphree Award in Industrial and Engineering Chemistry: Symposium in Honor of Milorad P. Dudukovic Multiphase Reaction Engineering: Fundamentals and Process Applications**

P. L. Mills, *Organizer*

- 1:00 **Introductory Remarks.**
- 1:05 **80.** Coal for petroleum? **O. Levenspiel**
- 1:25 **81.** Reaction engineering in Fischer-Tropsch refining context. **A. De Klerk**
- 1:45 **82.** Chemical looping gasification and carbon dioxide separation. **L. S. Fan**
- 2:05 **Intermission.**
- 2:20 **83.** A unifying analysis of defect decoration and surface polishing by chemical etching in silicon processing. **M. Kulkarni**
- 2:40 **84.** Inherently safe and selective oxidations with gas-expanded liquids.  
**B. Subramaniam**, D. H. Busch
- 3:00 **85.** Solvent effects in the catalysis of heterogeneous reactions. **H. Stitt**, L. F. Gladden, A. Pacey, A. W. Nienow, D. W. Rooney
- 3:20 **86.** Optimization of heterogeneous acid chloride and amine reaction in a pharmaceutical process. **Y. Yang**, D. S. Clyne

##### Section B

Salt Palace Convention Center  
355 B

**Nanotechnology and the Environment: Emphasis on Green Nanotechnology Sustainable Synthesis of Nanomaterials**  
Cosponsored by INOR and NANO

R. S. Varma, *Organizer*

- 1:00 **Introductory Remarks.**
- 1:05 **87.** Greener strategies for the synthesis of nanomaterials and nanocomposites.  
**R. S. Varma**, M. N. Nadagouda
- 1:35 **88.** Search for greener sorbents.  
**K. J. Klabunde**, S. Rajagopalan, D. Hamal, K. Kalebaila, X. Yang, M. Winter, D. Jones, H. Kwen
- 2:05 **89.** Multiple stages toward "green" production of complex nanoscale objects.  
**S. I. Cauët**, N. S. Lee, K. L. Wooley
- 2:35 **Intermission.**
- 2:55 **90.** Nanocellulose composites with soybean oil polyesters. **W. T. Winter**, Y. Takahashi
- 3:25 **91.** Carbon nanotube-zirconium dioxide hybrid for defluorination of water.  
**S. Mitra Sr.**, Y. Chen, R. S. Sathish

3:55 **92.** Conventional and microwave hydrothermal synthesis of monodispersed metal oxide nanoparticles at liquid-liquid interface. **B. Baruwati**, R. S. Varma

**George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend Surface Chemistry of Oxides** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

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#### TUESDAY EVENING

##### Section A

Salt Palace Convention Center  
355 E

##### General Posters

J. T. Ciszewski, *Organizer*

##### 5:00–7:00

93. CO<sub>2</sub> capture in room-temperature ionic liquid-amine solutions. **J. E. Bara**, D. Camper, **C. J. Gabriel**, D. L. Gin, R. D. Noble
94. Antioxidant effect of phenol derivatives on the autoxidation of soybean oil. **K. W. Lee**
95. Mechanistic insight into the ethylbenzene to styrene dehydrogenation over an iron oxide catalyst. **S. L. Weaver**
96. Fabrication of counter electrodes using surface modified carbon nanotubes for dye-sensitized solar cells and their performances. **H. J. Choi**, **J. E. Shin**, G. W. Lee, N. G. Park, K. K. Kim, S. C. Hong
97. Catalytic conversion of methanol to propylene over MFI zeolites. **K.-Y. Lee**, H.-K. Lee, M.-Y. Kang, **S.-K. Ihm**
98. Kinetic and thermodynamic studies on the adsorption of acid dyes onto chitosan- $\alpha$ -cyclodextrin polymer. **S. Chen**, W. Shi, W. Song, Q. Qin, Y. Zhang, J. Gao
99. Production of decaglycerol: Experimental data and theoretical considerations.  
**J. E. Tirano**, H. R. Zea
100. Fabrication of counter electrodes using surface modified carbon nanotubes for dye-sensitized solar cells and their performances. **H. J. Choi**, **J. E. Shin**, G. W. Lee, N. G. Park, K. K. Kim, S. C. Hong
101. Catalytic oxidation of 4-chlorophenol in aqueous solution over metal oxides supported on ceria-zirconia mixed oxide prepared by supercritical synthesis.  
**K.-H. Kim**, **S.-K. Ihm**
102. Nonhumidified fuel cells with neutral protic ionic liquid-based polymer electrolyte membrane. **J. S. Lee**, T. J. Toops, G. A. Baker, H. Luo, S. Dai
103. Identifying the genetic determinants of surface motility in Agrobacterium radiobacter K84. **S. Dela Cruz**, T. Platt, C. Fuqua
104. Separation and enrichment of the active constituents in Scutellaria baicalensis Georgi by solvent sublation. **Z. Wu**
105. Toward the reduction of hydrocarbon emissions in modern combustion engines using direct fuel excitation. **A. R. White**, R. DeVasher
106. Novel materials/engineering processes for advanced nanotechnology. **K. M. Choi**
107. Continuous, high-yield synthesis of dipyrromethanes using a spinning tube-in-tube reactor. **J. T. Ciszewski**, M. A. Gonzalez
108. Structure development of Mullite fibers from sol-gel state to ceramic. **X. Chen**, L. Gu, G. Sun
109. Synergistic tribological characteristics of ashless dithiocarbamate derivatives with Zn-DTP in mineral oil. **Y.-W. Kim**, K. Chung, D.-H. Hwang, B.-T. Yoon, W.-O. Cho
110. Synthesis of perovskite-type oxide LaCoO<sub>3</sub> by using mesoporous silica and its application for VOC oxidation.  
**M.-J. Suh**, **S.-K. Ihm**

**Polymers and Carbon Nanotubes** Sponsored by POLY, Cosponsored by NANO, COLL, I&EC, PHYS, and PMSE

## WEDNESDAY MORNING

## Section A

Salt Palace Convention Center  
355 D

**Nanotechnology and the Environment: Emphasis on Green Nanotechnology Membrane-Based Separations and Environmental Implications** Cosponsored by INOR and NANO

D. Bhattacharya, *Organizer*

8:00 Introductory Remarks.

8:05 111. Nanostructured materials/membranes for toxic metal separations and enzyme catalysis: An overview. **D. Bhattacharyya**, S. Datta, L. G. Bachas, D. Meyer, J. Xu, V. Smuleac

8:35 112. Efficient and scalable nanoparticle separation and deposition processing using the tunable properties of CO<sub>2</sub> expanded liquid solutions. S. R. Saunders, K. M. Hurst, W. R. Ashurst, **C. B. Roberts**

9:05 113. Nanotechnology for Hg management in CFLs. **B. Lee**, L. Sarin, N. Johnson, S. Bowers, R. H. Hurt

9:35 Intermission.

9:55 114. Single-walled carbon nanotubes: Their impact on soil microbial community composition and functions. **R. F. Turco**, Z. Tong, M. Bischoff, L. F. Nies, N. Carroll

10:25 115. Assessment of the impact of pegylated single-walled nanotubes in an anaerobic environment. **L. M. Nyberg**, L. F. Nies, R. F. Turco

10:55 116. On the materials origin of carbon nanotube toxicity: Interactions with the physiological antioxidant glutathione. **X. Liu**, I. Kulaots, A. B. Kane, R. H. Hurt

**George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend**

**Bimetallics and Electrocatalysis** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

## WEDNESDAY AFTERNOON

## Section A

Salt Palace Convention Center  
355 D

**Nanotechnology and the Environment: Emphasis on Green Nanotechnology Nanotechnologies for Environmental Cleanup** Cosponsored by INOR and NANO

D. Dionysios, *Organizer*

1:00 Introductory Remarks.

1:05 117. Role of natural water matrix in the photocatalytic degradation of microcystin-LR with NF-TiO<sub>2</sub> films. M. Pelaez, A. A. de la Cruz, **D. D. Dionysios**

1:35 118. Photocatalytic transformation of chloroform by biogenic titanium oxide nanoparticles from marine diatoms. **Y. Kim**, S. Y. Kwon, G. L. Rorrer, L. Semprini

2:05 119. Effect of nano zero-valent iron on TCE degradation by a mixed dechlorinating culture. **Z. Xiu**, Z. Jin, G. V. Lowry, T. Li, P. J. Alvarez

2:35 Intermission.

2:55 120. One step "green" synthesis of Pd nanoparticles of controlled size and their catalytic activity for trichloroethene hydrodechlorination. F. He, J. Liu, C. B. Roberts, **D. Zhao**

3:25 121. Activity and stability of nanophasic palladium-rhenium catalysts used for perchlorate reduction: Influence of rhenium surface speciation. J. K. Choe, J. R. Shapley, C. J. Werth, **T. J. Strathmann**

‡ Cooperative Cosponsorship

3:55 122. Application of carboxymethyl cellulose stabilized iron nanoparticles for destruction of chlorinated hydrocarbons in soil. F. He, M. Zhang, **D. Zhao**

4:25 123. Green nanotechnology for arsenic and heavy metal remediation. **A. W. Apblett**, A. P. Piquette, S. Kuriyavar

**George A. Olah Award in Hydrocarbon or Petroleum Chemistry: Symposium in Honor of Cynthia M. Friend**

**Surface Characterization and Chemistry** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, WCC, and PHYS

**Nanotechnology in Catalysis VI** Sponsored by CATL (probationary), Cosponsored by COLL, FUEL, I&EC, PETR, and NANO

## THURSDAY MORNING

## Section A

Salt Palace Convention Center  
355 D

**Nanotechnology and the Environment: Emphasis on Green Nanotechnology Nanomaterials for Clean Energy** Cosponsored by INOR and NANO

D. R. Rolison, *Organizer*

8:30 Introductory Remarks.

8:35 124. Improving centuries-old electrical energy storage devices by rethinking multifunction on the nanoscale and in 3-D. **D. R. Rolison**, J. W. Long, J. C. Lytle, M. E. Bourg, J. L. Dysart, K. A. Pettigrew

9:05 125. Nanogenerators. **Z. L. Wang**

9:35 126. Materials discovery and development for fuel cell applications. **H. D. Abruña**

10:05 Intermission.

10:25 127. Metal fluoride conversion nanocomposites: An alternative road for lithium based energy storage. **G. Amatucci**, F. Badway, N. Pereira, F. Cosandey, A. Gmitter

10:55 128. Promotion of hydrogen release from ammonia borane with nanostructured hexagonal boron nitride. **S. M. Kauzlarich**, D. Neiner, A. Karkamka, J. Wang, J. Linehan, B. W. Arey, T. Autrey

11:25 129. Properties and theoretical aspects for photoelectrochemical water splitting materials. **J. A. Turner**, T. G. Deutsch, M. Huda

**Catalysis for Coal Conversion** Sponsored by CATL (probationary), Cosponsored by FUEL and I&EC

**Nuclear Forensics** Sponsored by NUCL, Cosponsored by I&EC<sup>‡</sup>

## THURSDAY AFTERNOON

**Nuclear Forensics** Sponsored by NUCL, Cosponsored by I&EC<sup>‡</sup>

## INOR

## Division of Inorganic Chemistry

**D. C. Crans** and **B. T. Donovan-Merkert**, *Program Chairs*

## SUNDAY MORNING

## Section A

Salt Palace Convention Center  
Combo Rooms 254 B-C

**ACS Award in Inorganic Chemistry: Symposium in Honor of Daniel G. Nocera: Multi-electron Redox Reactions: Where Transition Metals Reign**

J. C. Peters and C. C. Cummins, *Organizers, Presiding*

9:00 Introductory Remarks.

9:05 1. C-H borylation: What's up with iridium? B. A. Vanchura, B. Ramanathan, G. A. Chotana, **M. R. Smith III**

9:30 2. Alkane, arene, and olefin oxidation at biological diiron centers. **S. J. Lippard**

9:55 3. Metal ligand triple bonds and the oxo wall. **H. B. Gray**, J. R. Winkler

10:20 4. Dipyrrolylazaallyl complexes display unusual electronic properties: Characterizations of (smif)<sub>2</sub>M (M = V, Cr, Mn, Fe, Co, Ni) and (smif)MX (smif = {(2-py)CH<sub>2</sub>N}). B. A. Frazier, E. C. Volpe, **P. T. Wolczanski**, T. R. Cundari, S. Doucette, S. Mossin, K. Meyer

10:45 Intermission.

10:55 5. Reactions of two-coordinate Ni(II) complexes supported by an N-heterocyclic carbene ligand. C. A. Laskowski, D. J. Bungum, V. M. Iluc, **G. L. Hillhouse**

11:20 6. Diiron hexacarbonyl proton reduction catalysts based on rigid naphthalene-1,8-dithiolate ligands. **T. D. Tilley**, R. J. Wright, C. Lim

11:45 7. Olefin metathesis catalysts of molybdenum and tungsten for the metathesis of alkanes. **R. R. Schrock**, B. C. Bailey, S. Miranescu, A. J. Jiang

## Section B

Salt Palace Convention Center  
255 B

**F. Albert Cotton Award in Synthetic Inorganic Chemistry: Symposium in Honor of Kenneth D. Karlin**

R. A. Ghiladi, *Organizer*

E. I. Solomon, *Organizer, Presiding*

9:00 8. Reduction of dioxygen to water by the multicopper oxidases. **E. I. Solomon**

9:30 9. Moving protons and electrons together. **J. M. Mayer**, C. R. Waidmann, V. W. Manner, J. J. Warren, T. F. Markle, T. A. Tronic

10:00 10. Copper dioxygen chemistry with diamines at low temperatures. P. Verma, P. Kang, L. M. Mirica, M. Vance, E. I. Solomon, **T. D. P. Stack**

10:30 Intermission.

11:00 11. Vibrational spectroscopic studies of NO in bioinorganic chemistry. **P. Moenne-Loccoz**, T. Hayashi, E. T. Yuki

11:30 12. Nonheme iron-alkylperoxo model complexes (Fe-OOR) with mixed N/S-ligation. **D. P. Goldberg**, F. Namuswe, G. D. Kasper, T. Hayashi, P. Moenne-Loccoz

12:00 13. Synthetic inorganic chemistry to probe biological zinc. **S. J. Lippard**

## Section C

Salt Palace Convention Center  
255 D

**Green Nanoscience** Cosponsored by COLL, POLY, and NANO

D. J. Nelson and S. S. Wong, *Organizers*

H. A. Godwin, *Presiding*

8:40 14. Bioinspired hybrid systems for the photoelectrocatalytic generation of hydrogen and natural gas. **P. Siyambalagoda Gamage**, S. H. Bossmann

9:00 15. Electrical impedance sensing approach for rapid nanotoxicity assay. **E. Hondroulis**, C-Z. Li

9:20 16. Highly efficient synthesis of gold nanorods in ionic liquid solvent systems. **M. Bockstaller**

**Photographing or recording meeting sessions and/or activities other than your own are prohibited at all official ACS events without written consent from ACS.**

9:40 17. Low temperature, green synthesis of CdSe/ZnS and CdSe/CdZnS core/shell quantum dots. **H. Zhu**, A. Prakash, D. Benoit, C. Jones, V. Colvin

10:00 18. Low temperature, rapid, template-free synthesis of variety of nanorods by alkaline reduction. **C. Yan**, N. Lee, M. J. Wagner

10:20 19. Mild synthesis of zinc oxide nanoparticles via an organometallic method. **K. L. Orchard**, A. Gonzalez-Campo, M. S. Shaffer, C. K. Williams

10:40 20. NiO(111) nanosheets as adsorbents for dye pollutants removal from wastewater. Z. Song, L. Chen, **J. Hu**, R. M. Richards

11:00 21. Synthesis of Ni-based nanoalloys at room temperature. **Z. Zhang**, T. M. Nenoff, J. Huang, D. T. Berry, P. P. Provencio

11:20 22. Tailoring pure and mixed La- and Ce-oxides nanostructures for desulfurization applications. **S. Liang**, Y. Wang, G. Vesper

11:40 23. Transformations of nitrite, nitric oxide, and nitrous oxide under hydrogen: Pd-Cu catalysts in water. M. F. Fanizza, K. A. Guy, **J. R. Shapley**, C. J. Werth

12:00 24. Why go green? Incentives and challenges for the design of environmentally friendly nanomaterials. **H. A. Godwin**

## Section D

Salt Palace Convention Center  
255 A

**Coordination Chemistry: Applications**

W. A. Howard, *Organizer*

A. D. Bettencourt-Dias and P. D. Battle, *Presiding*

9:30 25. Light-harvesting bifunctional ligands for luminescent platinum and palladium coordination polymers. E. G. Tennyson, **R. C. Smith**

9:50 26. Charge-transfer processes in transition metal complexes of p-quinone-based redox-active ligands. **S. S. Schueermann**, **M. Wagner**

10:10 27. Copper(I) sulfide clusters and complexes: Progress toward models of Cu<sub>2</sub> from nitrous oxide reduction. **R. P. Houser**

10:30 28. Nitrosation reaction of methyl salicylate mediated by the coordination of yttrium nitrate. Y. Liu, C. Qiu, X. Lin, L. Zhang, X. Li, Y. Li

10:50 29. Ligand design and synthesis for sensitization of Ln(III) ion luminescence. **A. de Bettencourt-Dias**, S. Viswanathan, D. T. de Lill, B. Mauil, R. M. Beeler, P. S. Barber, S. Tse

11:10 30. Novel thymidine analogs as potential diagnostic and therapeutic agents in nuclear medicine. **M. D. Bartholomá**, J. A. Zubieta

11:30 31. Single-molecule magnets: Optical switching ON/OFF the intermolecular interactions between SMMs. **T. Taguchi**, K. A. Abboud, G. Christou

## Section E

Salt Palace Convention Center  
255 C

**Organometallic Synthesis**

B. T. Donovan-Merkert and D. C. Crans, *Organizers*

D. Roddick, *Presiding*

9:20 32. Synthesis of PCP acceptor complexes of iridium. **D. M. Roddick**, J. J. Adams, N. Arulsamy, A. Lau

9:40 33. Zirconium complexes of a charge-versatile pincer ligand: Reversible switching between XXX and LXL charge motifs through addition of Lewis acids. **E. S. Wiedner**, M. J. A. Johnson, J. W. Kampf

10:00 34. meta-Terphenyl anchored pincer C<sub>3</sub> complexes. L. Ma, M. Lipke, R. A. Woloszynek, R. J. Gilliard, P. Challen, M. L. Kwan, **J. D. Protasiewicz**