

**NIOSH Schedule for The Society of Toxicology 55th Annual  
Meeting and ToxExpo,  
March 13–17, 2016, in New Orleans, Louisiana**

For a full map, visit: [http://www.toxicology.org/events/am/AM2016/docs/ToxExpo\\_map.pdf](http://www.toxicology.org/events/am/AM2016/docs/ToxExpo_map.pdf)

Find the app information here: <http://www.toxicology.org/events/am/AM2016/mobileit.asp>  
for specific locations, as the schedule is subject to change.

**Monday, March 14**

*Poster Session: Respiratory Toxicology from 9:30 AM to 12:45 PM in Exhibit Hall*

- **Diacetyl Causes Age-Enhanced Ubiquitin Aggregation in the Neuroepithelium of the Rat Nose.** A.F. Hubbs, A.P. Cole, K.L. Fluharty, L.A. Battelli, P. Charles, M.L. Kashon, A.M. Cumpston, W.T. Goldsmith, M.C. Jackson, W. McKinney, D.G. Frazer, K. Sriram, and J.S. Fedan. National Institute for Occupational Safety, and Health, Morgantown, WV.
- **Microglia Are Biosensors of Neuroinflammogens and Neurotoxicity, Whereas Astrocytes Are Linked Only to Neurotoxicity.** J.P. O’Callaghan, K.A. Kelly, A.R. Locker, L.T. Michalovicz, and D.B. Miller. CDC/NIOSH, Morgantown, WV.
- **Corticosterone Priming of the Neuroinflammatory Response to AChE Inhibitors Results in Overexpression of Tlr2 and Downstream Targets, but Not Activation of the Nlrp3 Inflammasome.** L.T. Michalovicz, K.A. Kelly, A.R. Locker, D.B. Miller, and J.P. O’Callaghan. CDC/NIOSH, Morgantown, WV.
- **Genetic Susceptibility and Occupational Exposure to Beryllium.** Weston, E.C. McCanlies, and K. Kreiss. National Institute for Occupational Safety, and Health, Morgantown, WV.
- **Exploration of the Gulf War Illness Phenotype in a Mouse Model Challenged with LPS at Long Term Time Points.** K.A. Kelly, A.R. Locker, L.T. Michalovicz, D.B. Miller, and J.P. O’Callaghan. CDC/NIOSH, Morgantown, WV.
- **Pulmonary Responses Following Inhalation of Sand Dust Collected from Hydraulic Fracturing Operations.** J.S. Fedan, J.A. Thompson, B.Y. Farris, W. McKinney, A.M. Cumpston, M.C. Jackson, K.A. Russ, and J.R. Roberts. National Institute for Occupational Safety, and Health, Morgantown, WV; and West Virginia University, Morgantown, WV

- **Gender Differences in Murine Pulmonary Responses Elicited by Nano-Crystalline Cellulose.** A.A. Shvedova, E.R. Kisin, N. Yanamala, M.T. Farcas, A.L. Sayre, D.W. Gutkin, P.M. Fournier, A. Star, R. Reiner, S. Halappanavar, and V.E. Kagan. Health Canada, Ottawa, ON, Canada; NIOSH, Morgantown, WV; University of Pittsburgh, Pittsburgh, PA; UPMC, Pittsburgh, PA; USDA Forest Service, Madison, WI; and WVU, Morgantown, WV.
- **Toxicological Effects of Inhaled Fracking Sand Dust on Reactivity and Neurogenic Responses of Isolated Rat Trachea.** K.A. Russ, W. McKinney, A.M. Cumpston, M.C. Jackson, J. Thompson, and J.S. Fedan. National Institute for Occupational Safety, and Health, Morgantown, WV. Sponsor: J. Roberts
- **Instillation of Indium-Tin Oxide Production Facility Particles in Rats Induces Pulmonary Toxicity.** M. Badding<sup>1</sup>, N. Fix<sup>3</sup>, M. Orandle, M. Barger, K. Dunnick, K. Cummings, and S. Leonard. Exponent, Alexandria, VA; <sup>2</sup>National Institute for Occupational Safety, and Health, Morgantown, WV; <sup>3</sup>State University of New York at Buffalo, Buffalo, NY; and The Hamner Institutes
- **Computational Dosimetry Reveals the Role Particles and Ions in the Toxicity of Soluble Silver Nanoparticles.** D.G. Thomas<sup>2</sup>, J. Smith<sup>2</sup>, V.K. Kodali<sup>1</sup>, M. Littke<sup>2</sup>, H. Jolley<sup>2</sup>, B.D. Thrall<sup>2</sup>, J.G. Pounds<sup>2</sup>, and J.G. Teeguarden. National Institute for Occupational Safety, and Health (NIOSH), Morgantown, WV; and Pacific Northwest National Laboratory (PNNL), Richland, WA.

## Poster Session: Nanotoxicology (General)

*1:15 PM to 4:30 PM—Exhibit Hall*

- **Nano-Scaled Cerium Oxide Induces Platelet Activation In Vivo.** D.C. Davidson, M. Barger, R. Derk, T.A. Stueckle, J. Ma, J. Cohen, P. Demokritou, and L. Wang. CDC/NIOSH, Morgantown, WV; and Harvard School of Public Health, Boston, MA.
- **Animal Inhalation Exposure to Nanomaterials: Design, Conduct, and Data Interpretation.** B.T. Chen. NIOSH, Morgantown, WV. Sponsor: P. Joseph.
- **Alteration of Allergic Response Following an Acute Pulmonary Exposure to Nickel Oxide Nanoparticles in a Murine OVA Asthma Model.** K.A. Roach, C.E. McLoughlin, S.E. Anderson, A.B. Stefaniak<sup>1</sup>, D. Schwegler-Berry, and J.R. Roberts. CDC/NIOSH, Morgantown, WV; and West Virginia University, Morgantown, WV.
- **Computational Dosimetry Reveals the Role Particles and Ions in the Toxicity of Soluble Silver Nanoparticles.** D.G. Thomas, J. Smith, V.K. Kodali<sup>1</sup>, M. Littke, H. Jolley, B.D. Thrall, J.G. Pounds, and J.G. Teeguarden. National Institute for Occupational Safety, and Health

(NIOSH), Morgantown, WV; and 2Pacific Northwest National Laboratory (PNNL), Richland, WA.

### Poster Session: Metal Toxicity

*1:15 PM to 4:30 PM—Exhibit Hall*

- **Comparison of the Toxicity of Sintered vs. Unsintered Indium-Tin Oxide Particles on Murine Macrophage and Epidermal Cells.** N.S. Olgun, A.M. Morris, A.B. Stefaniak, K.J. Cummings, M.L. Kashon, and S.S. Leonard. National Institute for Occupational Safety, and Health, Morgantown, WV.
- **Factors Affecting Hydrocarbon Gas and Vapor Exposure of Upstream Oil and Gas Workers During Completion and Production Activities at Unconventional Shale Oil and Gas Wells.** J.E. Snawder, M. Alexander-Scott<sup>1</sup>, M.J. Breitenstein<sup>1</sup>, E.J. Esswein<sup>2</sup>, B.C. Johnson<sup>1</sup>, B. King, C.A. Striley, and J. Toseski. National Institute for Occupational Safety, and Health, Cincinnati, OH; and National Institute for Occupational Safety, and Health, Denver, CO.

### Symposium Session: Health and Environmental Hazard Assessments of Nanomaterials Along Their Lifecycle Health and Environmental Impacts of Manmade and Naturally Released Toxicants

*2:00 PM to 4:45 PM in CC Room 217*

**Chairperson(s): Aaron Erdely, NIOSH, Morgantown, WV; and James Bonner, North Carolina State University, Raleigh, NC.**

- **Toxicological Evaluation of Carbon Nanotubes from a Lifecycle Perspective.** A. Erdely, L. Bishop, L. Sargent, and J. Bonner. NIOSH, Morgantown, WV; and North Carolina State University, Raleigh, NC.

## Tuesday, March 15

### Poster Session: Risk Assessment 1

Tuesday Morning, March 15 from 9:30 AM to 12:45 PM in CC Exhibit Hall

- **Comparison of Early vs Late Pulmonary Toxicity in Crystalline Silica Exposed Rats.** P. Joseph, J. Roberts, T.-h.B. Chen, W. McKinney, M. Orandle, and C. Umbright. NIOSH, Morgantown, WV.

### Poster Session: Inflammation: Methods and Mechanisms

*9:30 AM to 12:45 PM in CC Exhibit Hall*

Chairperson(s): Zihui Xiao, St. Johns University, Fresh Meadows, NY; and Pius Joseph, NIOSH, Morgantown, WV.

## Poster Session: Toxic Inhalants Research

*9:30 AM to 12:45 PM in CC Exhibit Hall*

- **Comparative Pulmonary Toxicity of Inhaled Metalworking Fluids in Rats and Mice.**  
K.R Ryan, M. Toraason<sup>4</sup>, M. Cesta, R. Herbert, A. Brix, M. Cora, K. Janardhan, K. Witt, G. Kissling, and D.L. Morgan. Division of the National Toxicology Program, NIEHS, Research Triangle Park, NC; EPL Inc, Research Triangle Park, NC; ILS Inc, Research Triangle Park, NC; and NIOSH, Cincinnati, OH.
- **Preliminary Evaluation of the Draft NIOSH Occupational Exposure Banding Protocol.**  
C. Whittaker, S. Gilbert, L. McKernan, and M. Seaton. NIOSH, Cincinnati, OH. Sponsor: S. Perumal Kuppusamy.
- **Neurotoxicology—Dopaminergic Systems and Toxicants MPTP Neurotoxicity Is Highly Concordant Between the Sexes in BXD Recombinant Inbred Mouse Strains.**  
G. Alam, D.B. Miller, J.P. O’Callaghan, L. Lu, R.W. Williams, and B.C. Jones. Centers for Disease Control, and Prevention-National Institute for Occupational Safety, and Health, Morgantown, WV; Jiangsu Key Laboratory of Neuroregeneration, Nantong University, Nantong, China; Northeast Ohio Medical School, Rootstown, OH; and University of Tennessee Health Science Center, Memphis, TN.

## Poster Session: Neurotoxicology—Dopaminergic Systems and Toxicants Advances in Neurotoxicology

*1:15 PM to 4:30 PM in CC Exhibit Hall*

- **Neurochemical Perturbations and Dopaminergic Injury Following Short-Term Inhalation Exposure to the Oil Dispersant COREXIT® EC9500A.**  
K. Sriram, G.X. Lin, A.M. Jefferson, W.T. Goldsmith, M. Jackson, W. McKinney, J.S. Fedan, and D.G. Frazer. CDC-NIOSH, Morgantown, WV.

## Poster Session: Non-Pharmaceutical Safety Assessment

*1:15 PM to 4:30 PM in CC Exhibit Hall*

- **Inhalation Health Effects Testing of Isobutanol Gasoline Blend: A Promising New Biofuel.** D. Burnett, J. Baustian, G. Hoffman, R. Parker, and J. O’Callaghan. BP, Global Product Stewardship, Naperville, IL; Butamax™ Advanced Biofuels, Wilmington, DE; CDC-NIOSH, Morgantown, WV; and Envigo, East Millstone, NJ.

## Wednesday, March 16

### Poster Session: Nanotoxicology: *In Vitro*

9:30 AM to 12:45 PM in CC Exhibit Hall

- **Genotoxicity of Pristine, Heat-Treated, and Nitrogen-Doped Multi-Walled Carbon Nanotubes at Occupationally Relevant Doses.**  
*K. Siegrist, S. Reynolds, R. Mercer, D. Porter, D. Lowry, L. Cena, M. Kashon, J. Salisbury, J. Mastovich, K. Bunker, M. Sparrow, S. Tsuruoka, M. Endo, M. Terrones, M. McCawley, and L. Sargent* CDC/NIOSH, Morgantown, WV; Mayo Clinic, Rochester, MN; Pennsylvania State University, State College, PA; RJ Lee Group, Monroeville, PA; Shinshu University, Nagano, Japan; and West Virginia University, Morgantown, WV.
- **Hydroxyl Radical Generation and Cytotoxicity of Zinc Nanoparticles in RAW 264.7 Cells.** A. Morris<sup>1</sup>, A. Stefaniak<sup>1</sup>, K. Dunnick<sup>3</sup>, M. Badding<sup>2</sup>, and S. Leonard<sup>1</sup>.  
<sup>1</sup>CDC/NIOSH, Morgantown, WV; Exponent, Washington, DC; and <sup>3</sup>The Hamner Institutes for Health Sciences, Research Triangle Park, NC.
- **An Evaluation of Genotoxicity from As-Produced and Post-Production Modification of Multi-Walled Carbon Nanotubes.**  
*K. Siegrist<sup>1</sup>, S. Reynolds<sup>1</sup>, C. Mitchell<sup>3</sup>, D. Lowry<sup>1</sup>, M. Kashon<sup>1</sup>, L. Bishop<sup>1</sup>, A. Erdelyi<sup>1</sup>, J. Bonner<sup>2</sup>, G. Parsons<sup>2</sup>, C. McClure<sup>2</sup>, and L. Sargent<sup>1</sup>.* CDC/NIOSH, Morgantown, WV; <sup>2</sup>North Carolina State University, Raleigh, NC; and <sup>3</sup>West Virginia University, Morgantown, WV.

### Poster Session: Nanotoxicology: *In Vivo*

9:30 AM to 12:45 PM in CC Exhibit Hall

- **Hydroxyl Radical Generation and Cytotoxicity of Zinc Nanoparticles in RAW 264.7 Cells.**  
Morris, A. Stefaniak, K. Dunnick, M. Badding, and S. Leonard. CDC/NIOSH, Morgantown, WV; Exponent, Washington, DC; and The Hamner Institutes for Health Sciences, Research Triangle Park, NC.
- **Effects of Pre-Exposure Dispersion Status on Nanoparticle Distribution and Fibrosis in the Lung.** T.M. Sager<sup>1,2</sup>, M. Wolfarth<sup>1</sup>, D.W. Porter<sup>1</sup>, R. Mercer<sup>1</sup>, V. Castranova<sup>3</sup>, and A. Holian<sup>2</sup>. NIOSH, Morgantown, WV; University of Montana, Missoula, MT; and <sup>3</sup>West Virginia University, Morgantown, WV.
- **Exposure to Respirable Biodiesel/Diesel Blend (BD50) Exhaust Particulate Generates Pronounced Aberrations in Male Reproductive System.** E.R. Kisin<sup>1</sup>, N. Yanamala<sup>1</sup>, M.T. Farcas<sup>1</sup>, D.W. Gutkin<sup>4</sup>, M.R. Shurin<sup>4</sup>, V.E. Kagan<sup>3</sup>, A.D. Bugarski<sup>2</sup>, and A.A. Shvedova<sup>1,5</sup>. <sup>1</sup>NIOSH, Morgantown, WV; <sup>2</sup>NIOSH, Pittsburgh, PA; University of Pittsburgh, Pittsburgh, PA; <sup>4</sup>UPMC, Pittsburgh, PA; and <sup>5</sup>WVU, Morgantown, WV.

- **Effects of Pre-Exposure Dispersion Status on Nanoparticle Distribution and Fibrosis in the Lung.** *T.M. Sager*<sup>1,2</sup>, *M. Wolfarth*<sup>1</sup>, *D.W. Porter*<sup>1</sup>, *R. Mercer*<sup>1</sup>, *V. Castranova*<sup>3</sup>, and *A. Holian*<sup>2</sup>. <sup>1</sup>NIOSH, Morgantown, WV; <sup>2</sup>University of Montana, Missoula, MT; and <sup>3</sup>West Virginia University, Morgantown, WV.
- **Exposure to Respirable Biodiesel/Diesel Blend (BD50) Exhaust Particulate Generates Pronounced Aberrations in Male Reproductive System.** *E.R. Kisin*<sup>1</sup>, *N. Yanamala*<sup>1</sup>, *M.T. Farcas*<sup>1</sup>, *D.W. Gutkin*<sup>4</sup>, *M.R. Shurin*<sup>4</sup>, *V.E. Kagan*<sup>3</sup>, *A.D. Bugarski*<sup>2</sup>, and *A.A. Shvedova*<sup>1,5</sup>. <sup>1</sup>NIOSH, Morgantown, WV; <sup>2</sup>NIOSH, Pittsburgh, PA; University of Pittsburgh, Pittsburgh, PA; <sup>4</sup>UPMC, Pittsburgh, PA; and <sup>5</sup>WVU, Morgantown, WV.

### Poster Session: Autoimmunity/Hypersensitivity

9:30 AM to 12:45 PM in CC Exhibit Hall

- **The Immunomodulatory Potential of MicroRNA 210 and Regulatory T Cells in a Murine Model of Chemical Sensitization.** *M. Long*, *N. Marshall*, *E. Lukomska*, *H. Shane*, *P. Siegel*, *B.J. Meade*, and *S. Anderson*. CDC-NIOSHHELD, Morgantown, WV; and West Virginia University, Morgantown, WV.
- **Irritancy and Allergic Responses Induced by Topical Application of Didecyldimethylammonium Chloride.** *S.E. Anderson*, *H. Shane*, *C. Long*, *E. Lukomska*, *B.J. Meade*, and *N.B. Marshall*. CDC NIOSH, Morgantown, WV.

## Thursday, March 17

### Poster Session: Nanotoxicology: Carbon Based

9:30 AM to 12:45 PM in CC Great Hall A

- **The Occupational Life Cycle of MWCNT: Toxicity Evaluation from As-Produced to Post-Production Modifications and Composites.** *L.M. Bishop*, *M. Orandle*, *L. Cena*, *V. Kodali*, *M. Dahm*, *M. Schubauer-Berigan*, *T. Sager*, *J. Scabilloni*, *D. Schwegler-Berry*, *T. Eye*<sup>2</sup>, *L. Battelli*, *J. Kang*, *G. Casuccio*, *K. Bunker*, *A. Stefaniak*, *P.C. Zeidler-Erdely*, *L. Sargent*<sup>2</sup>, *R.R. Mercer*, and *A. Erdely*. National Institute for Occupational Safety, and Health, Cincinnati, OH; National Institute for Occupational Safety, and Health, Morgantown, WV; and RJ Lee Group, Monroeville, PA.

### Workshop Session: Potential Health and Environmental Effects of Unconventional Hydraulic Fracturing

Thursday Morning, March 17 from 9:30 AM to 12:15 PM in CC Room R04

- **Overview of Unconventional Oil and Gas Exploration and Production and Possible Occupational Exposures.** *J. Snawder*. NIOSH, Cincinnati, OH.

## **Poster Session: Nanotoxicology: Carbon Based**

*9:30 AM–12:45 PM in CC Great Hall A*

- **Multi-Walled Carbon Nanotube (MWCNT)-Induced Fibrogenic Signaling in a Human Lung Epithelial-Fibroblast Co-Culture System.** A.L. Mihalchik, J.D. Sisler, and Y. Qian. NIOSH, Morgantown, WV; and West Virginia University, Morgantown, WV.
- **Characterization of Lung Toxicity Following Pulmonary Exposure to Graphene Nanoparticles in Different Oxidized Forms.** J.R. Roberts, T. Sager, L. Bishop, R.R. Mercer, A.B. Stefaniak, N.V. Yanamala, S.S. Leonard, K.A. Roach, D. Schwegler-Berry, I.S. Chaudhuri<sup>1</sup>, A. Kyrilidis<sup>1</sup>, B.Y. Farris, C.E. McLoughlin<sup>2</sup>, T. Eye, V. Kodali, M. Wolfarth, D.W. Porter, V. Castranova, and A. Erdely. Cabot Corporation, Billerica, MA; CDC/NIOSH, Morgantown, WV; and West Virginia University, Morgantown, WV.