



# 2019 AOCs Annual Meeting & Expo

May 5–8 America's Center Convention Complex | St. Louis, Missouri, USA

## Industrial Oil Products (IOP) Interest Area Tentative Technical Program

As of February 12, 2019

*This presentation list is not final and is subject to change.*

*The presenter is the first author, or the author indicated with an asterisk (\*).*

### Monday Afternoon

#### **BIO 1.1 / IOP 1: Biopolymers**

*Chairs: Rongpeng Wang, CVC Thermoset Specialties, USA; and Richard Ashby, USDA, ARS, ERRC, USA*

**Plant Oil Derived Emulsion Copolymers with Predictable Properties.** Meghan E. Lamm\*, Ping Li, and Chuanbing Tang, *University of South Carolina, USA*

**Corn Oil for Highly Flame Retardant Rigid Polyurethane Foams for Industrial Applications.** Camila Zequine, Sanket Bhojate, Brooks Neria, Pawan Kahol, and Ram Gupta\*, *Pittsburg State University, USA*

**Rapid Conversion of Oils into Various Monomers and Biopolymers.** Aman Ullah\*, Muhammad Arshad, Reza Ahmadi, and Liejiang Jin, *University of Alberta, Canada*

**Cationic Polymerization of Epoxidized Oils to Cast Resins and Foams.** Zoran Petrovic\*, and Dragana Radojicic, *Pittsburg State University, USA*

**Synthesis, Properties and Structure Function Correlation of Bioplasticizers in PVC.** Dharma R. Kodali\*, and Lucas J. Stolp, *University of Minnesota, USA*

**Synthesis and Characterization of Lipid-based Biopolymers and Bionanocomposites from Poultry Industry By-product.** Muhammad Safder\*, *University of Alberta, Canada*

**Corn Stover and Levulinic Acid: Two Valuable, Renewable Substrates for Biosynthesis of Unique Polyhydroxyalkanoate Biopolymers.** Richard D. Ashby\*, Daniel K.Y. Solaiman, Gary Strahan, and Alberto Nunez, *USDA, ARS, ERRC, USA*

**Microalgae for the Production of Novel Biopolymer Feedstocks.** Scott Franklin\*<sup>1</sup>, Zoran Petrovic<sup>2</sup>, Jian Hong<sup>3</sup>, Leon Parker<sup>4</sup>, Lauren Slutzky<sup>4</sup>, Mona Correa<sup>4</sup>, Nina P. Reyes<sup>5</sup>, Constantine Athanasiadis<sup>4</sup>, Jon Wittenberg<sup>4</sup>, Estelle Schaefer<sup>6</sup>, and Kevin Ward, <sup>1</sup>*Checkerspot, US*; <sup>2</sup>*Pittsburg State University, USA*; <sup>3</sup>*Kansas Polymer Research Center, Pittsburg State University, USA*; <sup>4</sup>*Checkerspot*; <sup>5</sup>*Checkerspot, Inc., USA*; <sup>6</sup>*Checkerspot, France*

Tuesday Morning

**IOP 2: Olechemicals and Green Chemistry**

*Chairs: Darrell Sparks, Mississippi State University, USA; and Zheng Guo, Aarhus University, Denmark*

**Chemistry and Property of pH-responsive Amino Acid-based Amphiphiles.** Weiwei Cheng<sup>1</sup>, Sampson Anankanbil<sup>2</sup>, Liu Guoqin<sup>3</sup>, and Zheng Guo<sup>\*4</sup>, <sup>1</sup>*South China University of Technology, China*; <sup>2</sup>*Dept. of Engineering, Aarhus University, Denmark*; <sup>3</sup>*School of Food Science and Engineering, South China University of Technology, China*; <sup>4</sup>*Aarhus University, Denmark*

**Modifying the Double Bond in Fatty Acids for New Materials: Oleo-chemistry versus Linoleo-chemistry.** Grigor B. Bantchev\*, and Girma Biresaw, *USDA/ARS/NCAUR, USA*

**Membrane-based Oil Washing.** Nikolai Kocherginsky<sup>\*1</sup>, Brajendra K. Sharma<sup>2</sup>, and Kishore Rajagopalan<sup>2</sup>, <sup>1</sup>*Biomime, USA*; <sup>2</sup>*Illinois Sustainable Technology Center, USA*

**Applicability of Esters from Mono-unsaturated Linear Dicarboxylic Acids for Lubricants.** Svajus J. Asadauskas<sup>\*1</sup>, Asta Griguzeviciene<sup>2</sup>, Linas Labanauskas<sup>2</sup>, Jean-Luc Couturier<sup>3</sup>, and Jean-Luc Dubois<sup>3</sup>, <sup>1</sup>*FTMC, Lithuania*; <sup>2</sup>*Institute of Chemistry, FTMC, Lithuania*; <sup>3</sup>*Arkema, France*

**Investigation of a Heterogeneous Chemical Process to Convert Sunflower Oil into a Value Added Branched-Chain Oil.** Helen Ngo Lew<sup>\*1</sup>, Yunzhi Chen<sup>2</sup>, and Robert A. Moreau<sup>1</sup>, <sup>1</sup>*USDA, ARS, ERRC, USA*; <sup>2</sup>*USDA-Agriculture Research Service, USA*

**Feasibility of the novel utilization of modified Azadirachta Indica seed oil as transformer insulating fluid.** Chinedu Agu<sup>\*1</sup>, Matthew Menkiti<sup>2</sup>, Albert Agulanna<sup>3</sup>, and Emeka Udokporo<sup>4</sup>, <sup>1</sup>*Nnamdi Azikiwe University,, Nigeria*; <sup>2</sup>*Nnamdi Azikiwe University, Awka, Nigeria, Nigeria*; <sup>3</sup>*Project Development Institute, Enugu, Nigeria, Nigeria*; <sup>4</sup>*University of Nigeria, Enugu Campus, Enugu, Nigeria*

**Coating Performance and Rheological Characteristics of Novel Soybean Oil-based Emulsions.** Kangzi Ren<sup>1</sup>, Tao Fei<sup>\*2</sup>, Tong Wang<sup>1</sup>, and Kenneth Metzger<sup>3</sup>, <sup>1</sup>*Iowa State University, USA*; <sup>2</sup>*Iowa State University, USA*; <sup>3</sup>*Eurica Group LLC., USA*

**Synthesis of Lipid Derived Nanocomposites and Microwave Assisted Copolymers.** Aman Ullah, Muhammad Arshad\*, Liliang Huang, and Mahrzadi N. Shahi, *University of Alberta, Canada*

**Waterborne Glycerol Based Thermoplastic Adhesives for Wood Composites.** Eric Cochran<sup>\*1</sup>, Chris Williams<sup>2</sup>, Andrew N. Becker<sup>2</sup>, Nacu B. Hernandez<sup>2</sup>, and Michael J. Forrester<sup>2</sup>, <sup>1</sup>*Iowa State University, USA*; <sup>2</sup>*Iowa State University, USA*

**Crystallization of Shortenings Based on the Blend of Palm Oil and Milk Fat.** Viet Nguyen<sup>\*1</sup>, Tom Rimaux<sup>2</sup>, Sabine Danthine<sup>3</sup>, Filip Van Bockstaele<sup>1</sup>, Koen Dewettinck<sup>4</sup>, and Vinh Truong<sup>5</sup>, <sup>1</sup>*Ghent University, Belgium*; <sup>2</sup>*Vandemoortele R&D Centre, Belgium*; <sup>3</sup>*University of Liège, Belgium*; <sup>4</sup>*University of Gent, Belgium*; <sup>5</sup>*Nong Lam University-HCM city, Vietnam*

**Engineering Green Phase Change Materials: Dibasic or Diol Esters?** Latchmi Raghunanan<sup>\*1</sup>, Laziz Bouzidi<sup>2</sup>, and Suresh Narine<sup>2</sup>, <sup>1</sup>*Trent Centre for Biomaterials Research, Departments of Physics & Astronomy and Chemistry, Trent University, Canada*; <sup>2</sup>*Trent University, Canada*

**New Insights for the Advancement of Bio-based Diamides as Phase Change Materials.** Kosheela D. Poopalam<sup>\*1</sup>, Latchmi Raghunanan<sup>2</sup>, Laziz Bouzidi<sup>1</sup>, Yeong SK<sup>3</sup>, and Suresh Narine<sup>1</sup>, <sup>1</sup>*Trent University, Canada*; <sup>2</sup>*Trent Centre for Biomaterials Research, Departments of Physics & Astronomy and Chemistry, Trent University, Canada*; <sup>3</sup>*Malaysian Palm Oil Board, Malaysia*

## Tuesday Afternoon

### **BIO 3.1 / IOP 3 / PRO 3.1: Biofuels**

*Chairs: Megan Hums, USDA-ARS-ERRC, USA; Frank Dumeignil, Lille University, France; and Xiofei P. Ye, University of Tennessee, USA*

**Modulating the Solubility of Saturated Monoglycerides (SMG) and Glycerol (GLY) in Blended Biodiesel Fuels.** Richard W. Heiden\*<sup>1</sup>, and Martin Mittelbach<sup>2</sup>, <sup>1</sup>*R. W. Heiden Associates, LLC, USA; <sup>2</sup>Institute of Chemistry, University of Graz, Austria*

**Waterborne Glycerol Based Thermoplastic Adhesives for Wood Composites.** Eric Cochran\*<sup>1</sup>, Chris Williams<sup>2</sup>, Andrew N. Becker<sup>2</sup>, Nacu B. Hernandez<sup>2</sup>, and Michael J. Forrester<sup>2</sup>, <sup>1</sup>*Iowa State University, USA; <sup>2</sup>Iowa State University, USA*

**Co-production of acrylic acid in a typical biodiesel plant: a techno-economic assessment.** Xiaofei P. Ye\*, *University of Tennessee, USA*

### **ANA 3.1 / EAT 3.1 / IOP 3.1: Analysis of PUFA and Fat Soluble Vitamin Analysis with Emphasis on Nutrition Labeling, and Food Applications of Low Saturated Fats/Oils**

*Chairs: Jillonne Kevala, US Food and Drug Administration, USA; and Serpil Metin, Cargill, USA*

**Modernizing the Nutrition Facts and Supplement Facts Labels.** Jillonne H. Kevala\*, *Food and Drug Administration, USA*

**Low Saturate High Oleic Canola Oil in Health and Nutrition.** Xiaolan Luo\*<sup>1</sup>, Nisa Tharayil<sup>2</sup>, and Diliara Iassonova<sup>3</sup>, <sup>1</sup>*Cargill, USA; <sup>2</sup>Cargill, USA; <sup>3</sup>Cargill Inc., USA*

**Validation of a HPLC Method for Analysis of Provitamin A Carotenoids ( $\beta$ -carotene,  $\alpha$ -carotene and  $\beta$ -cryptoxanthin).** Sneha Bhandari\*<sup>1</sup>, and Ming Gao<sup>2</sup>, <sup>1</sup>*Merieux Nutrisciences, USA; <sup>2</sup>Merieux NutriSciences, USA*

**Rheology and Baking Stability of Water in Oil Emulsion Designed as Low saturated Bakery Shortening.** Fernanda Davoli\*<sup>1</sup>, Serpil Metin<sup>2</sup>, and Paul Smith<sup>3</sup>, <sup>1</sup>*Cargill, USA; <sup>2</sup>Cargill R&D, USA; <sup>3</sup>Cargill Global Foods Research, Belgium*

**Quantification of Furan Fatty Acids by LC-MS/MS and their Identification in New Zealand Marine Oils.** Matthew R. Miller\*<sup>1</sup>, Donato Romanazzi<sup>2</sup>, Hajime Uchida<sup>3</sup>, Johnathon Puddick<sup>2</sup>, Yutaka Itabashi<sup>3</sup>, Masashi Hosokawa<sup>4</sup>, Toshiyuki Suzuki<sup>3</sup>, and Michael Boundy<sup>2</sup>, <sup>1</sup>*Cawthron, New Zealand; <sup>2</sup>Cawthron Institute, New Zealand; <sup>3</sup>National Research Institute of Fisheries Science, Japan; <sup>4</sup>Hokkaido University, Japan*

Wednesday Morning

**IOP 4 / PRO 4b: Biorefinery Technology and Catalysis**

*Chairs: Helen Ngo Lew, USDA, ARS, ERRC, USA; and Kris Knudson, Crown Iron Works Co., USA*

**An Efficient Catalytic Approach to the Synthesis of Wax Esters from Fatty Acid Methyl Esters.** Duc Hanh Nguyen<sup>1</sup>, Guillaume Raffa<sup>1</sup>, Yohan Morin<sup>1</sup>, Simon Desset<sup>1</sup>, Frédéric Capet<sup>1</sup>, Véronique Nardello-Rataj<sup>1</sup>, Franck Dumeignil<sup>\*2</sup>, and Régis Gauvin<sup>1</sup>, <sup>1</sup>UCCS, France; <sup>2</sup>Université de Lille, France

**A New Material for Reducing Glycidyl Esters in Edible Oil.** Chelsea L. Grimes\*, and Cristian Libanati, *W.R. Grace, USA*

**Effect of Thermal Treatment on Feeding Value of Expeller Soybean Meal in Hexane-free Soybean Processing.** Michal Kaválek<sup>\*1</sup>, and Vladimír Plachý<sup>2</sup>, <sup>1</sup>Farmet a.s., Czech Republic; <sup>2</sup>czech, Czech Republic

**Challenges in converting various fats and oils into a high yield of renewable jet fuel.** Asbjørn S. Andersson\*, *Haldor Topsoe A/S, Denmark*

**Renewable Diesel from Waste Lipids: Challenges and Conversion Impacts.** David Schwalje<sup>\*1</sup>, Larissa Perotta<sup>2</sup>, and Michael Zhao<sup>3</sup>, <sup>1</sup>Axens NA, USA; <sup>2</sup>Axens, France; <sup>3</sup>Axens, USA

**Maximizing Heat Recovery in Soybean Processing.** Mohamed Abid\*, *Solex Thermal Science Inc., Canada*

**IOP-P: Industrial Oil Products Poster Session**

*Chair: Jerry King, Critical Fluid Symposia, USA*

**Copolymers from Photochemical Thiol-ene Polycondensation of Fatty Dienes with Alkyl Dithiols.** Bryan R. Moser\*, *USDA Agricultural Research Service, USDA*

**Synthesis of Thiophene and Thiolane Derivatives Found in Biodiesel Produced from Brown Grease Lipids.** Shehu Isah\*, *Delaware State University-USDA, USA*

**Proximate composition, fatty acid profile, mineral and tocopherol contents of two industrial hempseed varieties in response to sowing dates and pesticide treatment.** Peiyi Shen<sup>\*1</sup>, Zili Gao<sup>1</sup>, Hui Li<sup>1</sup>, and Bingcan Chen<sup>2</sup>, <sup>1</sup>Department of Plant Sciences/North Dakota State University; <sup>2</sup>North Dakota State University, USA

**Cost-effective polyurethane sealants and adhesives from soybean polyols.** Jian Hong<sup>\*1</sup>, Dragana Radojic<sup>2</sup>, Mathew Long<sup>3</sup>, and Zoran Petrovic<sup>2</sup>, <sup>1</sup>Kansas Polymer Research Center, Pittsburg State University, USA; <sup>2</sup>Pittsburg State University, USA; <sup>3</sup>Kansas Polymer Research Center, Pittsburg State University, USA

**Filled Epoxy Resins from Natural Oils.** Dragana Radojic\*, *Pittsburg State University, USA*

**Lipid-Based Sulfones as Next-Generation Organic Phase Change Materials.** Navindra Soodoo<sup>\*1</sup>, Latchmi Raghunanan<sup>2</sup>, Laziz Bouzidi<sup>1</sup>, and Suresh Narine<sup>1</sup>, <sup>1</sup>Trent University, Canada; <sup>2</sup>Trent Centre for Biomaterials Research, Departments of Physics & Astronomy and Chemistry, Trent University, Canada

**Soy Oil-Based Non-Isocyanate Polyurethane resins for Stereolithography.** Ivan Javni\*<sup>1</sup>, Olivera Bilic<sup>2</sup>, Vivek Sharma<sup>1</sup>, Camille Holman<sup>3</sup>, and Xianmei Wan<sup>4</sup>, <sup>1</sup>*Pittsburg State University, USA*; <sup>2</sup>*Kansas Polymer Research Center/PSU, USA*; <sup>3</sup>*Pittsburg State University - KPRC, USA*; <sup>4</sup>*Pittsburg State University, USA*

**Renewable Polyols for Polyurethane from Soybean Oil.** Maha L. Shrestha\*<sup>1</sup>, Petar Dvornic<sup>2</sup>, and Mathew Long<sup>1</sup>, <sup>1</sup>*Kansas Polymer Research Center, Pittsburg State University, USA*; <sup>2</sup>*Pittsburg State University, USA*

**Isocyanate-Free Polyurethane Coatings from Soybean Oil.** Olivera Bilic\*<sup>1</sup>, Ivan Javni<sup>2</sup>, Tim Dawsey<sup>3</sup>, Xianmei Wan<sup>4</sup>, and Camille Holman<sup>3</sup>, <sup>1</sup>*Kansas Polymer Research Center/PSU, USA*; <sup>2</sup>*Pittsburg State University, USA*; <sup>3</sup>*Pittsburg State University - KPRC, USA*; <sup>4</sup>*Pittsburg State University, USA*

**Feruloylated Vegetable Oils Protect Vitamins C and E from UV Degradation.** David L. Compton\*<sup>1</sup>, Kervin O. Evans<sup>1</sup>, and John R. Goodell<sup>2</sup>, <sup>1</sup>*USDA, ARS, NCAUR, USA*; <sup>2</sup>*Active Naturals, USA*

**Development of New Coconut Oil-based Biting Fly Repellents.** Jim A. Kenar\*<sup>1</sup>, Steven C. Cermak<sup>2</sup>, and Junwei J. Zhu<sup>3</sup>, <sup>1</sup>*USDA-ARS-NCAUR-FFR, USA*; <sup>2</sup>*USDA-ARS-NCAUR, USA*; <sup>3</sup>*USDA-ARS-Lincoln, USA*

**Application of Green Technology using Natural Deep Eutectic Solvents (NaDES) for Recovering Canola Seed Phenolics.** Sumudu N. Warnakulasuriya\*<sup>1</sup>, Takuji Tanaka<sup>1</sup>, and Janitha P.D Wanasundara<sup>2</sup>, <sup>1</sup>*University of Saskatchewan, Canada*; <sup>2</sup>*Agriculture and Agri-Food Canada, Canada*

**Extraction, Purification and Characterization of Wax from Sorghum as an Alternative Natural Wax.** Junsi Yang\*, Loren Isom, Felipe Sperotto, Curtis Weller, and Ozan N. Ciftci, *University of Nebraska-Lincoln, USA*

**Novel Catalyst for Cationic Homopolymerization of Epoxidized Methyl Oleate.** Dragana Radojic\*, and Zoran Petrovic, *Pittsburg State University, USA*

**Impact of Delivery System Type on Curcumin Bioaccessibility: Comparison of Curcumin-loaded Lipid Nanoparticles with Commercial Curcumin Supplements.** D. Julian J. McClements<sup>1</sup>, Bingjing Zheng\*<sup>2</sup>, Xiaoyun Zhang<sup>3</sup>, and Shengpeng Pen<sup>3</sup>, <sup>1</sup>*University of Massachusetts Amherst, USA*; <sup>2</sup>*University of Massachusetts Amherst, Food Biopolymers and Colloids Lab, USA*; <sup>3</sup>*University of Massachusetts, Amherst, USA*

### Wednesday Afternoon

#### **AOCS Member + Volunteers Appreciation Luncheon**

12:30–2 p.m. // Complimentary with all meeting registration types.

#### **“Meet Me in St. Louis” Afternoon Excursion**

3–7 p.m. // Departs from the Marriott Grand  
Optional event. Ticket purchase is required.