2018 AOCS Annual Meeting & Expo

May 6–9 | Minneapolis Convention Center | Minneapolis, Minnesota, USA

Edible Applications Technology (EAT) Interest Area
Tentative Technical Program

As of January 3, 2018

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

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

Monday Afternoon

EAT 1: Phase Transition in Edible Applications *(A Session Dedicated to David Pink)*

Chairs: Gianfranco Mazzanti, Dalhousie University, Canada; and David Pink, St. Francis Xavier University, Canada

An Alternative to the Avrami Model in Fat Crystallization: A Chemical Potential Approach (CPA). Alejandro G. Marangoni, *University of Guelph, Canada*

Effect of Acoustic Power Level on Cavitation Events in Oil. Silvana Martini[1], Peter Birkin[2], P. Martin[2], Jack Youngs[2], Tadd Truscott[3], and Andrew Merritt[3], *[1]Utah State University, USA; [2]University of Southampton, United Kingdom; [3]Utah State University, USA*

The Role of Mechanical Processing on Water Droplet Distribution in the Manufacture of Margarine. Steven Robbins, *Richardson International, Canada*

Influence of Droplet Size on Salt and pH-induced Attractive Gelation in Food-Protein Stabilized Nanoemulsions. Aakash Patel, Natalie Longmore, and Supratim Ghosh*, *University of Saskatchewan, Canada*

Impact of Margarine and Shortening on Puff Pastry Attributes. Rachel E. Mertz, Dilip Nakhasi, and Roger Daniels, *Stratas Foods, USA*

Evaluation of Stabilizer Type on Peanut Butter Physical Attributes. Don Gifford, Rachel E. Mertz, Dilip Nakhasi, and Roger Daniels, *Stratas Foods, USA*

Tuesday Morning

EAT 2: Confectionery Fats

Chairs: Farnaz Maleky, Ohio State University, USA; and Linsen Liu, IOI Loders Croklann, USA

Fat Bloom and Anti-bloom in Confectionery Application. Linsen Li and Guang (Gil) Wang*, *Loders Croklaan, USA*

Studies on the Effect of Thermal Pre-treatment on the Isothermal Crystallisation of Cocoa Butter. Marjorie Ladd Parada[1], Josélio Vieira[2], Peng Siong Chong[2], Michael Rappolt[1], and Malcolm J.W. Povey[1], *[1]University of Leeds, UK; [2]Nestlé Product Technology Centre, UK*

Functional Properties of Fats and Emulsifiers in Candy Application. Linsen Liu, Guang (Gil) Wang, and Aliess Bedford*, *Loders Croklaan, USA*

Shea-based Shortenings. How to Overcome the Post-hardening Effect. Krish Bhaggan, Raul F. Petrut*, and Jun Ma, *IOI Loders Croklaan, The Netherlands*

Confectionary Coating and Filling Fat: A Review. Linsen Liu and Guang (Gil) Wang*, *Loders Croklaan, USA*

The Solubilization-Recrystallization-Diffusion Model to Quantify Oil Migration Kinetics in Cocoa Butter. Alejandro G. Marangoni, *University of Guelph, Canada*

Replacement of Hydrogenated Fats in Confectionary. Prakash Adhikari *Cargill Inc., China*

Synthesis of Cocoa Butter Equivalent by Enzymatic Interesterification of Illipe Butter and Palm Mid-fraction. Adiguna Bahari and Casimir C. Akoh, *University of Georgia, USA*

EAT 2.1: Delivery and Dispersed Systems

Chairs: Dérick Rousseau, Ryerson University, Canada; and Christopher Gregson, Ingredion, USA

Effect of the Composition and Structure of Excipient Emulsion on the Bioaccessibility of Pesticide Residue in Agricultural Products. Ruojie Zhang[1], D. Julian McClements[1], Lili He[1], Zipei Zhang[1], Wenhao Wu[2], Yeonhwa Park[3], and Baoshan Xing[2], *[1]University of Massachusetts Amherst, USA; [3]Stockbridge School of Agriculture, University of Massachusetts Amherst, USA; [4]Department of Food Science, University of Massachusetts Amherst, USA*

Flavor Partitioning into Short-chain Phospholipids: Effects of Self-assembled Structure. Andrew P. Karman, Stephanie R. Dungan, Susan E. Ebeler, and Nitin Nitin, *University of California, Davis, USA*

Tuesday Afternoon

EAT 3: Nano-, Micro- and Macrostructure

Chairs: Silvana Martini, Utah State University, USA; and Alejandro Marangoni, University of Guelph, Canada

Tailoring Promotion or Retardation of Nucleation Kinetics of Fats with Emulsifiers. Katsuyoshi Saitou[1], Ken Taguchi[2], Rika Homma[1], Masao Shimizu[1], Koichi Yasunaga[1], Yoshihisa Katsuragi[1], Satoru Ueno[3], and Kiyotaka Sato*[4], *[1]Kao Corporation, Japan; [2]Graduate School of Integrated Arts and Sciences, Hiroshima University, Japan; [3]Graduate School of Biosphere Science, Hiroshima University, Japan; [4]Hiroshima University, Japan*

Addition of Phytosterol Esters to Palm Oil Influences its 'Equilibrium' and Isothermal Crystallization Behavior. Eva Daels, Bart Goderis, and Imogen Foubert, *Katholieke Universiteit Leuven, Belgium*

Particulate Effects in Chocolate on Fat Bloom during Storage. Jiayang Jin and Richard W. Hartel, *University of Wisconsin-Madison, USA*

The Coalescence Behavior of Fat Globules in the Presence of Protein, mono/diglycerides and Polysorbate 80. Abbey E. Thiel and Richard W. Hartel, *University of Wisconsin-Madison, USA*

Adsorption Mechanisms for Hydrophobic Food Surfactants at an Oil-Water Interface. Jennifer A. Staton and Stephanie R. Dungan, *University of California, Davis, USA*

Determination of Phase Transition Temperatures of Micro Crystals from Sequential Microscopic Images. Hironori Hondoh[1], Mio Aoki[2], Seiya Takeguchi[3], and Satoru Ueno[1], *[1]Graduate School of Biosphere Science,*

Hiroshima University, Japan; [2]Hiroshima University, Japan; [3]The Nisshin OilliO Group, Ltd./Hiroshima University, Japan

Stability Studies of Pickering Emulsions Based on Different Types of Oils and its Application in Chocolate. Cunhong Chen[1], Yanchao Liu[2], Hong Zhang[3], Yanlan Bi[2], Qi Shen[1], Zhenbo Xu[1], and Xuebing Xu[4], *[1]Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd, China; [2]Henan University of Technology, China; [3]Wilmar (Shanghai) Biotechnology Research & Development Center Co., Ltd, Denmark; [4]Wilmar Global Research and Development Center, China*

EAT 3.1a / LOQ 3b: Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-life

Chairs: Tanu Tokle, Qualitech, USA; Ann-Dorit Moltke Sørensen, Technical University of Denmark, Denmark; and Chandra Ankolekar, Kemin Industries Inc., USA

Tocopherol Regeneration by Phospholipids in Soybean Oil-in-Water Emulsion: Effect of Tocopherol Homologue and Emulsifier Type. Gautam Samdani, D. Julian McClements, and Eric A. Decker, *University of Massachusetts Amherst, USA*

Effect of Droplet Size and Interfacial Crystallization on the Rheology of Fat Crystal-stabilized Water-in-Oil Emulsions. Dérick Rousseau and Ruby R. Rafanan, *Ryerson University, Canada*

Label Friendly EDTA Alternative for Oxidative Stability Improvement in Food Emulsions. Lan Ban, Yvonne Gildemaster, and Joan Randall, *Kemin Food Technologies, USA*

EAT 3.2 / H&N 3.1: Influence of Fat Composition on Metabolic Status

Chairs: Amanda Wright, University of Guelph, Canada; and Marie-Caroline Michalski, INRA, France

Citric Acid Esters-stabilized Emulsions During in vitro Digestion: Effect of the Physical State of Emulsifier. Qing Guo, Nick Bellissimo, and Dérick Rousseau, *Ryerson University, Canada*

Impact of Emulsion Droplet Physical State on *in vitro* Lipid Digestion. Surangi K.P.H. Thilakarathna and Amanda Wright, *University of Guelph, Canada*

Wednesday Morning

EAT 4: Lipid Gels: Application and Functionality in Edible Products

Chairs: Michael Rogers, University of Guelph, Canada; and Serpil Metin, Cargill R&D, USA

Oil Gel: Its Historic Development and Technical Hurdles to Overcome for Future Commercialization. Linsen Liu, *IOI Loders Croklann, USA*

Peptide-based low molecular weight organogelators (LMOGs): structural influence of side chain, chain length and D/L configuration on gelation behavior. Yaqi Lan and Yong Cao, *South China Agricultural University, China*

Physical Properties, Microstructure and Intermolecular forces of Soybean Oil Oleogels Structured by Different Polysaccharides. Zong Meng[1], Keyu Qi[2], and Yuanfa Liu[3], *[1]School of Food Science and Technology, Jiangnan University, China; [2]School of Food Science and Technology, State Key Laboratory of Food Science and Technology, Jiangnan University, China; [3]School of Food Science and Technology, State Key Laboratory of Food Science and Technology, Jiangnan University, China*

Natural Saponin-based Emulsion Templates for Edible Oil Structuring. Xaioquan Yang, *South China University of Technology, China*

Photoprotective Mechanism of Supramolecular Oleogels on Retinyl Palmitate. Yixing Tian and Nuria C. Acevedo*, *Iowa State University, USA*

Interaction between Different Lipid Structuring Agents in Organogels. Thais Silva[1], Silvana Martini[2], and Daniel B. Arellano[1], *[1]Unicamp, Brazil; [2]Utah State University, USA*

Engineering Mechanical Properties of Edible Oleogels Based on Ethylcellulose and Lecithin. Mayra Aguilar-Zarate[1], Jorge F. Toro-Vazquez[1], and Alejandro G. Marangoni[2], *[1]Universidad Autónoma de San Luis Potosí, Mexico; [2]University of Guelph, Canada*

Crystallization Behavior of Low Saturated, Non-hydrogenated Fat Systems Structured with Different Oleogels - Monoglycerides, Vegetable Wax and its combinations. Fernanda Davoli[1], Serpil Metin[2], and Paul Smith[3], *[1]Cargill, USA; [2]Cargill R&D, USA; [3]Cargill Global Foods Research, Belgium*

Whey Protein and Vegetable Oil Interactions within Oleocolloid Matrices. Clifford Park, Rafael Jimenez-Flores, and Farnaz Maleky, *Ohio State University, USA*

EAT 4.1 / LOQ 4b: Food Structuring to Reduce Lipid Oxidation

Chairs: Hong-Sik Hwang, USDA, ARS, NCAUR, USA; Alex Kripps, Caldic USA, USA; and Yaqi Lan, South China Agriculture University, China

Formation of Free-flowing Fish Oil-loaded Hollow Solid Lipid Micro- and Nanospheres Using Carbon Dioxide. Junsi Yang and Ozan N. Ciftci, *University of Nebraska-Lincoln, USA*

Natural Wax Oleogels-A Method to Prevent Oxidation of Fish Oil. Hong-Sik Hwang[1], Matthew Fhaner[2], Jill Moser[1], and Sean Liu[3], *[1]USDA, ARS, NCAUR, USA; [2]University of Michagan-Flint, USA; [3]USDA, ARS, USA*

Self-assembled Colloidal Complexes of Polyphenol–gelatin and their Stabilizing Effects on Emulsions. Chaoying Qiu, Yu Huang[1], Zhen Zhang[2], Ying Li[3], and Yong Wang[1], *[1]Jinan University, China; [2]South China University of Technology, China; [3]Guangdong Saskatchewan Oilseed Joint Laboratory, Dept. of Food Science and Engineering, Jinan University, China*

Ability of SDS Micelles to Increase the Antioxidant Activity of α-tocopherol. Raffaella Inchingolo[1], Sezer S. Kiralan[1], Sibel Uluata[1], MariaTeresa Rodriguez Estrada[2], D. Julian McClements[3], and Eric A. Decker[4], *[1]University of Massachusetts, USA; [2]University of Bologna, Italy; [3]University of Massachusetts, Amherst, USA; [4]University of Massachusetts Amherst, USA*

Impact of Reduced Oxygen Environment and Natural Antioxidants on the Oxidative Stability of Oil-in-Water Emulsions. Eric A. Decker[1], and David R. Johnson*[2], *[1]University of Massachusetts Amherst, USA; [2]Kalsec Inc., USA*

Wednesday Afternoon

EAT 5 / IOP 5: Waxes and Phase Change Materials

Chairs: Nuria Acevedo, Iowa State University, USA; and Chelsey Castrodale, Clasen Quality Chocolate, USA

Multiple β Forms of Tripalmitin in Different Crystallization Pathway. Seiya Takeguchi[1], Hironori Hondoh[2], Hidetaka Uehara[3], and Satoru Ueno[2], *[1]The Nisshin OilliO Group, Ltd./Hiroshima University, Japan; [2]Graduate School of Biosphere Science, Hiroshima University, Japan; [3]The Nisshin OilliO Group, Ltd., Japan*

The Effect of Processing on Hybrid Shortenings Containing Diacylglycerols. Iris Tavernier[1], Tom Rimaux[2], Koen Dewettinck[3], and Ian T. Norton[4], *[1]Ghent University, Belgium; [2]Vandemoortele R&D Centre, Belgium; [3]University of Gent, Belgium; [4]Chemical Engineering, University of Birmingham, United Kingdom*

Engineering Lipid Properties Through Glycerolysis. Reed A. Nicholson and Alejandro G. Marangoni, *University of Guelph, Canada*

An Emerging Natural Wax: Sorghum Wax from Bioethanol Production. Jeffrey T. Cafmeyer, *Battelle, USA*

Role of Rice Bran Wax on Crystallization and Rheological Properties of Oleogels from Rice Bran Oil. Khakhanang Wijarnprecha[1], Pravit Santiwattana[2], Sopark Sonwai[3], and Dérick Rousseau[4], *[1]Department of Food Technology, Silpakorn University, Thailand; [2]Thai Edible Oil Co., Ltd., Thailand; [3]Silpakorn University, Thailand; [4]Ryerson University, Canada*

EAT 5.1 / S&D 5.1: Complex Phenomena at Interfaces

Chairs: Sam Adamy, Church & Dwight Co. Inc., USA; and Ozan Ciftci, University of Nebraska-Lincoln, USA

Complex Interfaces: Role in Foam and Emulsion Behavior of Rinse-off Cosmetics. Edward DiAntonio[1], Hani Fares[1], Martin S. Vethamuthu*[1], and Seher Ozkan[2], *[1]Ashland Specialty Ingredients G.P., USA; [2]Ashland Specialty Ingredients, USA*

Crystal-melt Interfacial Energy Effects on the Surface Nucleation of Triglycerides. Alejandro G. Marangoni, *University of Guelph, Canada*

Interaction and Synergism in Surfactant/Water Soluble Polymer Solutions in Boosting Foaming Performance in Home, Personal Care Formulations. Manilal Dahanayake[1] and Milton J. Rosen[2], *[1]Surfactant Solution Experts LLC, USA; [2]Surfactant Research Institute, USA*

Effect of Emulsifiers on the Interfacial Tension of Fat-reduced W/O Emulsions Added with a High Behenic Stabilizer. Marisol Cordoba-Barragan[1], Jaime D. Pérez-Martínez[1], and Elena Dibildox Alvarado[2], *[1]Lab. Biopolímeros Alimentarios, Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí, Mexico; [2]Universidad Autónoma de San Luis Potosí, Mexico*

Characterizing Adsorption Kinetics and Wetting Behavior of Polyelectrolyte Complexes (PECs). Claire Dentinger and David Scheuing, *Clorox, USA*

Surfactant Effects on Fat Crystallization at the Oil-water Interface. Nicole Green[1], Stephen R. Euston[2], and Dérick Rousseau[1], *[1]Ryerson University, Canada; [2]Heriot-Watt University, United Kingdom*

EAT-P: Edible Applications Technology Poster Session

Chair: Supratim Ghosh, University of Saskatchewan, Canada

Posters will be available for viewing from noon on Monday, May 7 through 2:00 p.m. Wednesday, May 9, 2018.

Chemical Characterization and Antioxidant Capacity of Sesame Oils Extracted by Supercritical, Subcritical and Conventional Techniques. Longkai Shi, Li Zheng, Ruijie Liu, Ming Chang, Qingzhe Jin, and Xingguo Wang, *Jiangnan University, China*