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Engineering & Scientific Consulting

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Professional Profile

Dr. Sulmonetti is a chemical engineer whose areas of expertise include reaction engineering, biomass processing, catalysis, inorganic materials synthesis, materials characterization, and various spectroscopic techniques. His current research interests include textiles, alternative energy processes, biorenewable products, industrial chemical processes, process safety, and fires and explosions.

Prior to joining Exponent, Dr. Sulmonetti was a Graduate Research Assistant at Georgia Institute of Technology where he synthesized, characterized, and analyzed non-precious, multi-metal catalysts utilized in the conversion of key biomass platform molecules into renewable fuel additives and plastic precursors. His extensive reaction engineering experience includes designing and testing laboratory-scale batch and vapor phase flow reactors, with concurrent product analysis through gas chromatography (GC). Additionally, he has extensive experience with material characterization techniques including X-ray photoelectron spectroscopy (XPS), X-ray absorption spectroscopy (XAS), X-ray diffraction (XRD), differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and transmission electron microscopy (TEM).

In addition, Dr. Sulmonetti held an internship in the beverage industry for the Coca-Cola Company conducting failure analysis and environmental life cycle testing on fountain drink syrup pumps. Lastly, he has had research experience in synthesizing and characterizing poly(imide-siloxane)s for high temperature applications while interning at NASA's Langley Research Center.

Academic Credentials & Professional Honors

Ph.D., Chemical Engineering, Georgia Institute of Technology (Georgia Tech), 2017

B.S., Chemical Engineering, Lehigh University, 2013

Georgia Institute of Technology Leadership Fellow, 2016-2017

Prior Experience

Engineering Intern - Freestyle Division, Coca-Cola, Summer 2012

Polymer Research Intern, NASA's Langley Research Center, Summer 2011

Publications

Sulmonetti TP, Bo H, Lee S, Agrawal PK, Jones CW. Reduced Cu-Co-Al Mixed Metal Oxides for the Ring-Opening of Furfuryl Alcohol to Produce Renewable Diols. ACS Sustainable Chemical Engineering 2017; 5(10): 8959-8969.

Bo H, Kim WG, Sulmonetti TP, Sarazen ML, Tan S, So J, Moore JS, Liu Y, Dixit RS, Nair S, Jones CW. Mesoporous CoAl2O4 Spinel Catalyst for Non-Oxidative Propane Dehydrogenation. ChemCatChem 2017; 9(17): 3330-3337.

Sulmonetti TP, Bo H, Ifkovits Z, Lee S, Agrawal PK, Jones CW. Selective Hydrogenolysis of Furanics Utilizing Reduced Cobalt Mixed Metal Oxide Catalysts. ChemCatChem 2017; 9(10): 1815-1823.

Sulmonetti TP, Pang S, Claure MT, Lee S, Cullen D, Agrawal PK, Jones CW. Vapor Phase Hydrogenation of Furfural over Nickel Mixed Metal Oxides. Applied Catalysis A: General 2016; 517: 187-195.

Oral Presentations

Sulmonetti TP, Agrawal PK, Jones CW. Tunable Mixed Metal Oxides for the Selective Hydrogenation and Ring-Opening of Furfuryl Alcohol. AIChE National Meeting, Minneapolis, MN, 2017.

Sulmonetti TP, Bo H, Ifkovits Z, Lee S, Agrawal PK, Jones CW. Selective Hydrogenolysis of Furfuryl Alcohol to 2-Methylfuran Over Reduced Co-Fe-Al Mixed Metal Oxides. AIChE National Meeting, San Francisco, CA, 2016. - Session's Best Presentation

Sulmonetti TP, Bo H, Lee S, Agrawal PK, Jones CW. Ring-Opening of Furfuryl Alcohol Towards 1,5-Pentanediol Over Reduced Cu-Co-Al Mixed Metal Oxides. AIChE National Meeting, San Francisco, CA, 2016. - Session's Best Presentation

Sulmonetti TP, Agrawal PK, Jones CW. Hydrogenation and Hydrogenolysis of Furanics Utilizing Non-Precious Mixed Metal Oxides. Southeastern Catalysis Society Symposium, Asheville, NC, 2016.

Sulmonetti TP, Pang S, Claure MT, Lee S, Cullen D, Agrawal PK, Jones CW. Vapor Phase Hydrogenation of Furfural Utilizing Nickel Mixed Metal Oxides. AIChE National Meeting, Salt Lake City, UT, 2015.

Poster Presentations

Sulmonetti TP, Agrawal PK, Jones CW. Tunable Mixed Metal Oxides for the Selective Hydrogenation and Ring-Opening of Furfuryl Alcohol. North American Catalysts Society Meeting, Denver, CO, 2017.

Sulmonetti TP, Pang S, Claure MT, Lee S, Cullen D, Agrawal PK, Jones CW. Vapor Phase Hydrogenation of Furfural Utilizing Nickel Mixed Metal Oxides. International Congress on Catalysis, Beijing, China 2016.