

# MICHAEL STELLATO

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## SUMMARY

Hard-working, self-motivated PhD candidate, extremely interested in the field of energy, particularly in sustainability, renewables, and catalysis. Member of "The Lignin Group" at Georgia Tech, advised by Dr. Carsten Sievers, Dr. Andreas Bommarius, and Dr. Valerie Thomas.

## EDUCATION

*Georgia Institute of Technology*

Ph.D in Chemical Engineering

*Anticipated May 2021*

- Fellow of the Renewable Bioproducts Institute

*University of Massachusetts Amherst*

Bachelor of Science in Chemical Engineering

*May 2016*

*GPA: 3.66*

- Commonwealth Honors College, Tau Beta Pi Engineering Honor Society, Dean's List, Dean's Scholarship, Greg & Susan Sherowski and Edwin V. Sisson Scholarships

## SKILLS AND CERTIFICATIONS

*Laboratory: Familiar with-* XRD, SEM, GC, HPLC, ZLC, IR, NMR, mass spec., distillation, titration

*Computer:* MATLAB, Excel, Mathematica, ImageJ, MathCAD, PowerPoint, Word

## LABORATORY EXPERIENCE

Conversion of Lignin Monomers to Phenol and Catechol

*January 2017 to Present*

- Working with other members of "The Lignin Group" to investigate the economical conversion of lignin to value added chemicals.
- Methods involving heterogeneous metal and zeolite catalysis will be compared with homogenous enzyme catalysis to generate a reaction pathway from lignin monomers and dimers to catechol and phenol.
- Kinetic and thermodynamic studies will give insight into the viability of harnessing lignin as a potential source of carbon compounds.

Novel Zeolite Synthesis Design (Dr. Wei Fan)

*January 2015 to May 2016*

- Investigated new, cost effective production methods for SSZ-13 zeolites, an industrial catalyst used to reduce NO<sub>x</sub> and other toxins from exhaust fumes in catalytic converters.
- Optimized the silica source, silica/aluminum ratio, structure directing agent, and several other parameters to minimize production costs
- Developed and tested a production method viable for industrial scale up

Tuning the Leidenfrost Transition Temperature of Cellulose (Dr. Paul Dauenhauer)

*November 2013 to July 2014*

- Recorded and analyzed high speed videos to determine the effect of surface chemistry and roughness on the Leidenfrost transition temperature of liquid cellulose.
- Investigated the transition of liquid cellulose from adsorbed to desorbed on various surfaces at a range of temperatures.
- Published results in *Nature Scientific Reports* and presented in a poster at the UMass Amherst REU exposition.

## WORK EXPERIENCE

Manufacturing Engineering Intern

*Summer 2016*

- Worked with a team of other engineers and interns implementing new process documentation procedures.
- Aided in the designing and scale up of commercialization projects.
- Worked closely with both R&D scientists and manufacturing technicians to better understand industrial scale chemical production.

## LEADERSHIP AND AFFILIATIONS

AIChE Student Chapter Academic Chair (UMASS)

*Fall 2015 to Spring 2016*

- Responsible for organizing and running student tutoring as well as interfacing with the department

US Sailing Certified Level 1 Instructor

## PUBLICATIONS

Teixeira, A. R. *et al.* Reactive Liftoff of Crystalline Cellulose Particles. *Sci. Rep.* **5**, 11238; doi: 10.1038/srep11238 (2015)