Brian M. Tackett

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Apartment 6NB
New York, NY 10463

EDUCATION

UNIVERSITY OF PITTSBURGH, Pittsburgh, PA ***Aug. 2009 – Dec. 2013***

B.S. Chemical Engineering, Chemistry Minor, Overall GPA: 3.97

COLUMBIA UNIVERSITY, New York City, NY ***Sept. 2014 – Present***

M.S./Ph.D. Track Candidate, Chemical Engineering, Overall GPA: 3.90

Relevant Coursework

- Advanced Chemical Kinetics
- Advanced Chem. Eng. Thermodynamics
- Math Methods in Chem. Eng.
- Chem. Eng. Applications of Electrochemistry

RESEARCH EXPERIENCE

NATIONAL SCIENCE FOUNDATION REU SCHOLAR ***May – Aug. 2013***

Stony Brook University – Dr. Jason Trelewicz

- Investigated novel nanocrystalline tungsten compounds for self sharpening projectiles
- Interacted with primary investigator and graduate students to create cohesive research plan
- Performed over 15 high-energy ball mill experiments for material synthesis
- Characterized materials using SEM and synchrotron X-ray diffraction
- Implemented thermodynamic model in MATLAB script

UNDERGRADUATE RESEARCH ASSISTANT ***Aug. 2012 – Dec. 2013***

University of Pittsburgh – Dr. Gotz Veser

- Carried out PBR and TGA experiments for chemical looping combustion research
- Synthesized, characterized, and tested nanoscale materials for chemical looping partial oxidation of methane applications

PRESIDENTIAL FELLOW ***Sept. 2014 -- Present***

Columbia University – Dr. Jingguang Chen

- Beginning research on novel catalysts for fuel cell applications
- Will work on physical vapor deposition sample synthesis, 3-electrode electrochemical testing, and XPS characterization

RELEVANT WORK EXPERIENCE

MATERIALS SCIENCE/CHEMICAL RESEARCH CO-OP

Mine Safety Appliances, Cranberry, PA ***Jan. – May 2011 & Aug. – Dec. 2011***

- Set up, carried out, and analyzed service life tests of chemical cartridges (wet lab work)
- Resolved product complaints from the field using analytical chemistry techniques
- Extensive use of DSC, TGA, and FTIR for determining composition of materials
- Extensive use of tensile tester and DMA for mechanical analysis of materials
- Organized and presented results of over 25 tests using MS Excel and Word (and VBA)

PROCESS METALLURGY INTERN – Grain-Oriented Electrical Steel

ATI Allegheny Ludlum, Leechburg, PA ***May – Aug. 2012***

- Organized mill experiments for steel insulation improvement
- Defined alternate operating conditions to save $350k/year in cost
- Performed over 30 surface analyses using SEM
- Collected, analyzed, and reported data using Minitab, MS Excel, MS Word, MS PowerPoint

TEACHING EXPERIENCE

UNDERGRADUATE TEACHING ASSISTANT

Organic Chemistry I – University of Pittsburgh **Fall 2012 & Fall 2013**

- Led weekly organic chemistry recitation (25-30 students)
- Created student worksheets based on professor's notes
- Used examples to simplify complex topics to increase students' understanding
- Provided additional one-on-one tutoring as requested

STEM LAB TUTOR

Double Discovery Center – Columbia University **Sept. 2014 – Present**

- Tutor New York City high school students in STEM fields during weekly 2hr sessions
- Provide one-on-one and small group (4-5 students) instruction
- SAT and New York State Regent Test Prep

PUBLICATIONS AND POSTER PRESENTATIONS

- Bhavsar, Saurabh; Tackett, Brian; Veser, Goetz. "Evaluation of iron- and manganese-based mono- and mixed-metallic oxygen carriers for chemical looping combustion." FUEL, v(136), pg 268-279. 2014.
- "Nanocrystalline tungsten alloys for self sharpening kinetic energy penetrators." REU Research Symposium, Stony Brook University, NY. 2013.
- "Ni-Fe Mixed Oxides for Chemical Looping Combustion and Chemical Looping Partial Oxidation of Methane." Omega Chi Epsilon undergraduate poster competition – University of Pittsburgh, PA. 2013.

HONORS AND AWARDS

- University of Pittsburgh: University Scholar award (top two percent of class) ***2011 – 2013***
- II-VI Foundation Scholarship ***2011 – 2012***
- University of Pittsburgh: Stuart Memorial Scholarship (departmental award) ***2012***
- University of Pittsburgh: Omega Chi Epsilon poster contest winner ***2012***
- University of Pittsburgh: Librizol Foundation Scholarship ***2013***
- Keynote Speaker at Swanson School of Engineering Graduation ***2013***
- NSF Graduate Research Fellowship Honorable Mention ***2014***
- Columbia University: Presidential Fellowship ***2014 – Present***

VOLUNTEER / CLUB ACTIVITIES

PITT CLUB CROSS COUNTRY TEAM – President/Coach ***Aug. 2012 – Dec. 2013***

- Organize daily team practices and write training plan for 30-60 members
- Organize travel logistics for team members at 4-5 meets during each fall
- Compete with team and attend daily practice

OMEGA CHI EPSILON (Pitt) – Treasurer ***Jan. – May 2013***

- Organize travel logistics to conferences
- Manage club bank account
- Write and defend proposals for university funding

ENGINEERS FOR A SUSTAINABLE WORLD (Pitt) – Green Action Team ***Aug. – Dec. 2011***

- Volunteer weekly to create “green” infrastructure around Pittsburgh
- Hands-on work for construction of rain gardens and vacant lot reclamations