Ryan J. Paull

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Summary: Materials science & engineering Ph.D. candidate researching the synthesis and characterization of inorganic solid-state nanomaterials and their surface chemistry, with extensive experience managing multiple concurrent projects and working in and leading multi-disciplinary collaborations.

Education

Northwestern University *Evanston, IL*
Ph.D. Materials Science and Engineering Overall GPA: 3.97 / 4.0 **Expected December 2019**
Management Certificate for Scientists and Engineers, Kellogg School of Management **August 2018**
University of California, Berkeley *Berkeley, CA*
M.S. Materials Science and Engineering Overall GPA: 3.70 / 4.0 **May 2014**
B.S. Materials Science and Engineering, Minor in Physics. Overall GPA: 3.59 / 4.0 **May 2013**

Selected Technical Skills

Materials Synthesis: Sol-Gel and Solvothermal Syntheses, Atomic Layer Deposition, Chemical Vapor Deposition, Physical Vapor Deposition (DC Magnetron Sputtering, Pulsed Laser Deposition, Evaporation)
Materials Characterization: X-Ray Diffraction, Fourier Transform Infrared Spectroscopy, Raman Spectroscopy, Scanning / Transmission Electron Microscopy, Energy Dispersive Spectroscopy, X-Ray Absorption Spectroscopy, Atomic Force Microscopy, Quartz Crystal Microbalance, Temperature-Programmed Experiments
Data Analysis & Computer Programming: Mathematica, MATLAB, Origin, Excel, Igor, LabVIEW, HTML, Python
Equipment Management: High-temperature pressure vessels, furnaces, vacuum and gas flow systems

Research Experience

Graduate Researcher, Northwestern University, *Evanston, IL* **September 2014 – Present**
Designed, synthesized, and characterized metallic nanoparticle catalysts with tunable oxide support properties.

- Developed the first low-temperature process to synthesize faceted rare earth scandates.
- Designed the process flow, vacuum system, and safety protocol for handling hydrogen sulfide gas.
- Managed and directed the research efforts of a collaboration between 4 professors and 6 graduate students across three academic disciplines.
- Mentored 5 graduate and 2 undergraduate students in material synthesis, optoelectronics, and photocatalysis.
- Repaired and maintained chemical reactors that operate at high temperatures and pressures.

Graduate Researcher, University of California, Berkeley, *Berkeley, CA* **June 2013 – August 2014**
Researched low-energy electronic approaches towards non-volatile memory.

- Developed the first room temperature anti-ferromagnetic memory resistor.
- Demonstrated the ability to reversibly switch magnetic ordering using an electric field near room temperature.

Undergraduate Researcher, University of California, Berkeley, *Berkeley, CA* **February 2012 – May 2013**
Investigated thin film heterostructures for their structural, electronic, and magnetic coupling.

- Automated data acquisition for anisotropic magnetoresistance measurements, increasing speed by over tenfold.

Management and Leadership Experience

Administrative Chair, Graduate Society of Women Engineers (SWE), *Evanston, IL* **July 2016 - Present**
Marketed and planned outreach, networking, and social events to support graduate women in STEM.

- Co-founded an initiative called HeForSWE which aims to empower men to advocate for gender equality in STEM and promote an inclusive environment.

President, Materials Science Student Association, *Evanston, IL* **June 2015 – June 2016**
Managed a board of 10 students that worked with administration and faculty to provide social, volunteering, and recruitment events to a department of 215 graduate students and 81 post-doctoral researchers.

- Negotiated with faculty to improve the wages of graduate students in the department by over 5%.

Teaching Assistant, Northwestern University, *Evanston, IL* **March 2016 – June 2016**
Taught 25 undergraduate and graduate students thermal & electronic properties through weekly lectures and office hours.

President, UC Choral Ensembles, *Berkeley, CA* **May 2013 – May 2014**
Managed a council of directors, administration, and nine constituent groups in organizing musicals and choral concerts.

- *Outstanding Manager Award* recipient for the 2013-14 school year, as voted on by the council.