

Michaela Gradstein

1000 Gopher Avenue #12 651-000-1212
Minneapolis, MN 55414 mechanical@umn.edu

EDUCATION

University of Minnesota, College of Science and Engineering, Twin Cities Minneapolis, MN
Candidate for Master of Science in Mechanical Engineering, May 2015

Thesis title: "Low Pressure Plasma Synthesis of Crystalline Silicon Nanoparticles"

University of Kansas, Lawrence, KS
Bachelor of Mechanical Engineering, May 2010

AWARDS AND HONORS

Presidents Council for Excellence, 2014
National Fellow for Phipps Consortium, 2012
Society of Mechanical Engineers Phelps Award, 2011

RESEARCH EXPERIENCE

Graduate Research Assistant

Particle Technology Lab, August 2011- present
University of Minnesota-Twin Cities Minneapolis, MN

- Administer experimental and theoretical studies on the filtration of fractal aggregates
- Sustain NSF funded research on real-time structure and mass measurements for agglomerated nanoparticles
- Collaborate with area companies through Center for Filtration Research (CFR) to study mass loading and pressure drop on Nanofiber filters
- Develop new modules for and maintaining a web-based software on filter performance evaluation, dust cake loading, and filter pleating design
- Conduct numerical study on diffusion-limited aggregation of nanoparticles in laminar shear to find the relation between velocity gradient and aggregate fractal dimension

Research Assistant

High Temperature and Plasma Laboratory, August 2010-May 2011
Department of Mechanical Engineering, University of Minnesota-Twin Cities Minneapolis, MN

- Designed and optimized a low pressure silane plasma reactor to synthesize single crystal cube shaped silicon nanoparticles for electronic device applications
- Examined and categorized nanoparticles on electron and atomic force microscopes
- Characterized plasma particle system using electrostatic capacitance probe, white light absorption spectroscopy, optical emission spectroscopy, and laser light scattering
- Assembled and maintained vacuum equipment for the experimental setup
- Performed experiments for varying plasma conditions

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TEACHING EXPERIENCE

Teaching Assistant, Graduate Level Course-Advanced Aerosol & Particle Engineering,
January 2013- present

Department of Mechanical Engineering, University of Minnesota-Twin Cities Minneapolis, MN

- Conducted office hours to help students understand and solve homework problems
- Prepared and graded homework solutions
- Wrote weekly quizzes, posted solutions online, graded quizzes and exams, kept record of the scores using Excel
- Collaborated with professors and other TA's on course material and grading policies, improving communication skills

PROFESSIONAL MEMBERSHIPS

- Minnesota Society of Professional Engineers, August 2012-present
- International Association of Mechanical Engineers, August 2010-present
- American Society of Mechanical Engineers, August 2008-present

Community

- AmeriCorps Volunteer, MN Math Corps, St. Paul, MN, July 2012
- Volunteer, Annual Blood Drive-American Red Cross, St. Paul, MN May 2009-present

REFERENCES

Dr. Gordon Gopher, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

goldy@umn.edu

Relationship: Professor and mentor for 4 years

Dr. Byron Labb, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

blabb@umn.edu

Relationship: Academic advisor for 3 years

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Dr. Mark Machine, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

mmachine@umn.edu

Relationship: Teaching assistant advisor and mentor for 2 years