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Aaron Michael Schinder

PHD Student and NDSEG Fellow
High Power Electric Propulsion Lab,
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Georgia Institute of Technology
Advisor: Prof. Mitchell Walker, mitchell.walker@aerospace.gatech.edu,
Advisor: Prof. Julian Rimoli, julian.rimoli@aerospace.gatech.edu

Career Objective:

- Projected to graduate with PhD in aerospace engineering/minor math, in August 2016. Desire to work on the design and development of novel propulsion systems for spacecraft and launch vehicles.

Experience:

- Fall 2011 - Present - PhD Student, High Power Electric Propulsion Lab, Georgia Institute of Technology under Prof Mitchell Walker and Julian Rimoli.
 - Studying the physical processes behind the erosion of channel wall materials in Hall effect thrusters (HETs). Computational and experimental basic research into plasma material interactions with applications to life limiting processes in HETs.
 - Experience with plasma physics, Hall thruster physics (coursework and research), combustion and thermodynamics (qualifying exam), solid mechanics (qualifying exam and research), and programming (research). Design, machining, and construction of test fixtures.
 - Publication: Schinder, Aaron, Walker, M., Rimoli, J. "3D Model for Erosion of a Hall Effect Thruster Discharge Channel Wall." *Journal of Propulsion and Power*, 2014. doi:10.2514/1.B35098.
 - Publication: Schinder, Aaron, Walker, M., Rimoli, J., "3D Model for Atomic Sputtering of Heterogeneous Ceramic Compounds." *49th AIAA/ASME/SAE/ASEE Joint Propulsion Conference*. American Institute of Aeronautics and Astronautics, 2013. DOI 10.2514/6.2013-4127.
- Summer 2011 - Intern through Aerotek for Ball Aerospace, AFRL Laser Effects Research Branch.
- Mar 2007 - Dec 2011: USAF Officer, Laser Effects Engineer, Laser Effects Research Branch, AFRL, Kirtland AFB.
 - Project officer and principle investigator for a joint RDT/RDLE exploratory study. Planned and executed a year-long multi-part test effort on coupon level samples, searching for an effect of interest to the Air Force.
 - Project officer, analyst, and experimenter for several tests. On the MANPADS test, a major outdoor testing program, I performed analysis on expectations for rocket thrust and nozzle ejection velocity, and briefed the air base wing commander and senior civilian division director on safety and risk mitigation for the test, enabling the test to proceed.

Education, Credentials, and Awards:

- National Defense Science and Engineering Graduate Fellow, American Society of Engineering Education, Sep 2013 to present.
- MS, Aeronautical Engineering, High Power Electric Propulsion Lab, Georgia Institute of Technology, Atlanta GA, 2013. GPA: 3.93.
- BS Aeronautical Engineering, Major Concentration: Propulsion, Minor Concentration: Structures, Minor in Economics, Purdue University, West Lafayette IN, 2006. GPA 3.91.
- Engineer Intern License, ET30707657, Indiana Professional Licensing Agency
- Directed Energy Directorate, 3rd Quarter Scientist and Engineer Award, AFRL Directed Energy Directorate, Nov 2009.
- Directed Energy Directorate 4th Quarter Technical Teamwork Award, AFRL Directed Energy Directorate, Dec 2007.

Skills, Interests, Activities:

- Experience programming, compiling, and running simulation software in Windows and Linux environments. C, C++, FORTRAN, Matlab, and Python languages. Developed engineering simulations, and designed websites: www.republicedm.com, www.amssolarempire.com, and others.
- Some experience with Solidworks, Fluent, 3-axis mill and lathe. Designed and built test fixtures for experiments. Strain gages, thermocouples, plasma diagnostics, microscopes, and other lab instruments.
- Math tutor, Highland High-school, Albuquerque NM 2008-2011, currently tutoring one-on-one.
- Enrolled in flying lessons, anticipate award of private pilot's license summer 2016.
- Interests: 3D printing, cryptography, physics, space exploration.
- Chair of Albuquerque AIAA chapter, 2010-2011.