

PATRYK PAWEŁ RADYJOWSKI

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EDUCATION

The University of Texas at Austin, Austin, TX May 2021
Ph.D. Graduate program in Mechanical Engineering GPA 3.83/4.00
Dissertation: "Additive Manufacturing of cermet based combustion devices"

The University of Edinburgh, Edinburgh, UK May 2013
1st class Master & Bachelor of Engineering with Honours, Electrical and Mechanical Engineering

EXPERIENCE

R&D Engineer Advanced Cooling Technologies, Inc. 07/2021 - current

- Project: Rapid and Tunable Cooling Technology for Vacuum Furnaces DE-SC0020508
- Project: ARPA-E Reducing Emissions of Methane Every Day of the Year
- Actively pursuing SBIR opportunities

Graduate Research The University of Texas at Austin 01/2015 - 05/2021

- Use of Laser Sintering AM method with ceramic powders and liquid metal infiltration
- Operations and safety oversight over the experimental combustion laboratory
- Familiarity with laser sintering equipment and high temperature vacuum furnaces
- Mentoring of undergraduate researchers, 7 years of teaching assistance in thermodynamics

Summer Intern Mitsubishi Electric Research Laboratories 05/2017 - 08/2020

- Developed an operational prototype of a space-rated 3D resin printer aimed at CubeSats
- Achieved pressurized flow control, precise positioning, and semi-autonomous operation
- Worked in cooperation with chemical consulting on resin development

Lead Technical Designer Texas Guadalupe - Hyperloop 9/2015 - 7/2019
MIT Hyperloop II 8/2018 - 7/2019

- Senior designer for SpaceX Hyperloop Competition student pod entry
- Full CAD design, CFD aerodynamic, vacuum validation and FEM structure analysis
- Pneumatic lead – delivered 6000 psi N₂ distribution system approved by SpaceX
- Strong involvement in system integration

Visiting Research Assistant The University of Edinburgh 06/2013 - 12/2013

- Continuation of Master's thesis work on superconducting generator thermal design
- Gained an insight into cryoengineering, applications of superconductors, thermal management, and CAE
- Developed a custom thermal model of the cryogenic system
- Provided an optimized design of high current leads for minimal thermal loading

SKILLS

- Technical interests: Thermal design, Combustion and Additive Manufacturing
- Proficient in C++, LabView, LaTeX, MATLAB, and Python programming languages
- Familiar with Linux, CFD (OpenFOAM, Fluent), and CAD (Fusion 360, SolidWorks)
- Maker – DIY built a 3D printer and a CNC router, machine shop experience
- Practical experience in electronics (Arduino) and PC hardware
- Passionate about rocketry, space exploration and IT technology
- Resistant to stress and adapt easily to a required role.

ACCOMPLISHMENTS

Innovation Award, SpaceX Hyperloop Competition IV (MIT Hyperloop II), July 2019

Innovation Award, SpaceX Hyperloop Competition II (Texas Guadalupe), August 2017

Member, Longhorn Rocket Association, Fall-Spring 2010/11 & Spring 2012

Member, Formula SAE UT Team – Fall 2010

SELECTED PUBLICATIONS

- P. Radyjowski & J. Ellzey (2021) Experimental Study on the Influence of Gas-Solid Heat Transfer in a Mesoscale Counterflow Combustor, *Combustion Science and Technology*, DOI: 10.1080/00102202.2021.2003792
- P. Radyjowski, D. Bourell, D. Kovar & J. Ellzey (2021) Additive Manufacturing of Si-SiC for Combustion Device Applications, *Solid Freeform Fabr Symp Proc.*, pp 157-168
- P. Radyjowski, I. Schoegl & J. Ellzey (2021) Experimental and Analytical Investigation of a Counter-flow Reactor at Lean Conditions, *Combustion Science and Technology*, DOI: 10.1080/00102202.2021.1938017
- A. Weiss, W.S. Yerazunis, P. Radyjowski & R. Cottrell (2019) On-Orbit Additive Manufacturing of Parabolic Reflector via Solar Photopolymerization, *International Astronautical Congress*, October 2019, IAC19C2.IP.2.x51358
- P. Radyjowski, O. Keysan, J. Burchell & M.A. Mueller (2016) Development of a superconducting claw-pole linear test-rig, *Superconductor Science and Technology* Vol. 29, Iss. 4, 2016 DOI: 10.1088/0953-2048/29/4/044002
- E. Belmont, P. Radyjowski & J. Ellzey (2014) Effect of Geometric Scale on Heat Recirculation and Syngas Production in a Noncatalytic Counter-flow Reformer, *Combustion Science and Technology* Vol. 187, Iss. 6, 2015 DOI: 10.1080/00102202.2014.978864

PRESENTATIONS

- P. Radyjowski, R. Bush, & J. Ellzey (2019) Advanced Heat Recirculating Counterflow Reactors Utilizing Additive Manufacturing, Western States Section of Combustion Institute Meeting Fall 2019, October 2017
- P. Radyjowski, R. Bush, & J. Ellzey (2017) Smoldering Behavior of Compacted Sawdust, Western States State Section of Combustion Institute Meeting Fall 2017, October 2017
- P. Radyjowski, S. Newcomb, & J. Ellzey (2017) Design of Complex Reactors using Additive Manufacturing, 10th U.S. National Combustion Meeting of Combustion Institute, April 2017