

**Dr. Stephen P. Lynch**  
The Pennsylvania State University  
Mechanical Engineering  
149 NARCO, University Park, PA 16802  
Phone: (814) 867-4768; Email: spl11@psu.edu

## Education

Ph D in ME; Virginia Polytechnic Institute & State University, Blacksburg, VA, 2011.  
MS in ME, Virginia Polytechnic Institute & State University, Blacksburg, VA, 2007.  
BS in ME, University of Wyoming, Laramie, WY, 2003.

## Professional Positions

Associate Professor, The Pennsylvania State University. (June 2019 - Present).  
Shuman Family Early Career Assistant Professor, The Pennsylvania State University. (2018 - 2019).  
Assistant Professor, The Pennsylvania State University. (August 2013 - June 2019).  
Senior Research Engineer, United Technologies Research Center. (May 2011 - July 2013).

## Professional Memberships

American Society of Mechanical Engineers (ASME): Gas Turbine Heat Transfer Committee, Rohsenow Prize subcommittee chair (2018-present); member since 2015.  
American Institute for Aeronautics & Astronautics (AIAA): Gas Turbine Engines Technical Committee, Chair (2020-2022); Vice Chair (2018-2020); member since 2015

## Awards and Honors

Associate Fellow, AIAA. (October 2021).  
Fellow, ASME. (July 2020).  
Young Investigator Award, Office of Naval Research. (2015-2018).  
Best Paper, ASME K-14: Gas Turbine Heat Transfer Technical Committee. (2019).  
W. M. Rohsenow Prize, American Society of Mechanical Engineers (ASME). (2016).

## Teaching Experience

### Penn State

ME 315, Heat Transfer Lab, 22 courses  
ME 325, Fluids Lab, 10 courses  
ME 397, Special Topics, 8 courses  
ME 410, Heat Transfer, 10 courses  
ME 441, Thermal Sys Design, 1 course  
ME 494H, Senior Honors Thesis, 9 courses  
ME 512, Conduction, 2 courses  
ME 513, Convection, 11 courses  
ME 597, Special Topics Courses, 5 courses

## Directed Student Learning

Dissertation Committee Chair: 6 students to date (3 graduated)  
Dissertation Committee Member: 26 students to date (23 graduated)  
Master's Thesis Committee Chair: 10 students to date (5 graduated)  
Master's Thesis Committee Member: 13 students to date (13 graduated)  
Online Master's Paper Advisor: 5 students to date (5 graduated)  
Undergraduate Honors Thesis Advisor: 8 students to date (7 graduated)

## Intellectual Contributions

### Articles Published in Refereed Journals (Past 4 years)

Saltzman, D., & Lynch, S. (2022). Overall pressure loss and heat transfer performance of additively manufactured offset strip fins used in compact heat exchangers. *Journal of Thermal Science and Engineering Applications* [in press].  
Wilkins, P., Lynch, S., Thole, K. A., Quach, S., Vincent, T., & Mongillo, D. (2022). Effect of a ceramic matrix composite surface on film cooling. *Journal of Turbomachinery*, 144(8).  
Xu, H., Lynch, S., & Yang, X. (2022). Direct numerical simulation of slot film cooling downstream of misaligned plates. *Flow*, 2.

- Sinha, S., Lynch, S., & Meisel, N. A. (2021). Heat transfer simulation of material extrusion additive manufacturing to predict weld strength between layers. *Additive Manufacturing*, 46.
- Robison, Z., Mosele, J.-P., Gross, A., & Lynch, S. (2021). Numerical investigation of turbulent junction flow. *AIAA Journal*, 59(11).
- Mekki, B., Langer, J., & Lynch, S. (2021). Genetic algorithm based topology optimization of heat exchanger fins used in aerospace applications. *International Journal of Heat and Mass Transfer*, 170.
- Haydt, S., & Lynch, S. (2021). Heat transfer coefficient augmentation for a shaped film cooling hole at a range of compound angles. *Journal of Turbomachinery*, 143(5).
- Wilkins, P., Lynch, S., Thole, K. A., Quach, S., & Vincent, T. (2021). Experimental heat transfer and boundary layer measurements on a ceramic matrix composite surface. *Journal of Turbomachinery*, 143(6).
- Saltzman, D., & Lynch, S. (2021). Flow Field Measurements in a Metal Additively Manufactured Offset Strip Fin using Laser Doppler Velocimetry. *Journal of Fluids Engineering*, 143(4).
- Zuccarello, J., Lange, E., & Lynch, S. (2020). Effect of longitudinal vortices on turbulent junction flow heat transfer. *Journal of Thermophysics and Heat Transfer*, 34(4).
- Bichnevicius, M., Saltzman, D., & Lynch, S. (2019). Comparison of additively manufactured louvered plate-fin heat exchangers. *Journal of Thermal Science and Engineering Applications*, 12(1).
- Elahi, S., Lange, E., & Lynch, S. (2019). Experimental measurements of turbulent junction flow using high speed stereo PIV and IR thermography. *International Journal of Heat and Mass Transfer*, 142.
- Haydt, S., & Lynch, S. (2019). Cooling effectiveness for a shaped film cooling hole at a range of compound angles. *Journal of Turbomachinery*, 141(4).
- Muirhead, K., & Lynch, S. (2018). A computational study of combustor dilution flow interaction with turbine vanes. *Journal of Propulsion and Power*, 35(1).
- Saltzman, D., Bichnevicius, M., Lynch, S., Simpson, T. W., Reutzel, E., Dickman, C., & Martukanitz, R. (2018). Experimental comparison of a traditionally built versus additively manufactured aircraft heat exchanger. *Applied Thermal Engineering*, 138, 254-263.
- Haydt, S., Lynch, S., & Lewis, S. (2018). The effect of area ratio change via increased hole length for shaped film cooling holes with constant expansion angles. *Journal of Turbomachinery*, 140(5).

#### **Parts of Books**

- Thole, K. A., Lynch, S., & Wildgoose, A. (2021). Review of advances in convective heat transfer. In John Patrick Abraham, John M. Gorman, Wolodmyr Minkowycz (Eds.), *Advances in Heat Transfer*. (53).

#### **Editorial and Advisory Boards**

*ASME Journal of Turbomachinery*, Associate Editor. (July 2019 - Present).

#### **Peer Reviewer of Grant Proposals, Manuscripts, Etc.**

Reviewer for 15 journals (i.e. *Applied Thermal Engineering*, *International Journal of Heat and Mass Transfer*, *AIAA Journal*, *Journal of Thermophysics and Heat Transfer*, *Journal of Heat Transfer*, *Journal of Thermal Science and Engineering Applications*, *Journal of Turbomachinery*, *International Journal of Heat and Fluid Flow*)

#### **Sponsored Research (past 3 years)**

PI for 10 projects (total \$1.97M)  
Co-PI for 8 projects (total \$4.8M, his share \$1.45M)

#### **Notable Service**

American Society of Mechanical Engineers Student Section Advisor (2019 - Present).  
Promotion and Tenure Committee, Committee Member (2019 - Present).  
Reviewer for Penn State Erickson Discovery Grants, Member. (2018, 2019, 2022).  
Session organizer for ASME IGTI Turbo Expo (2013-present)  
Rohsenow Prize subcommittee chair, ASME Gas Turbine Heat Transfer Committee (2017 - 2022).  
Chair, AIAA Gas Turbine Engines Technical Committee, 2020-2022.