Stanford

Matthew R. Edwards

Assistant Professor of Mechanical Engineering

Bio

BIO

Matthew Edwards is an Assistant Professor of Mechanical Engineering. His research applies high-power lasers to the development of optical diagnostics for fluids and plasmas, the study of intense light-matter interactions, and the construction of compact light and particle sources, combining adaptive high-repetition-rate experiments and large-scale simulations to explore new regimes in fluid mechanics, thermodynamics, materials science, and plasma physics.

Matthew received BSE, MA, and PhD degrees in Mechanical and Aerospace Engineering from Princeton University. He was then a Lawrence Fellow in the National Ignition Facility and Photon Science Directorate at Lawrence Livermore National Laboratory.

ACADEMIC APPOINTMENTS

- Assistant Professor, Mechanical Engineering
- Principal Investigator, Stanford PULSE Institute

PROFESSIONAL EDUCATION

- PhD, Princeton University , Mechanical and Aerospace Engineering (2019)
- MA, Princeton University , Mechanical and Aerospace Engineering (2015)
- BSE, Princeton University , Mechanical and Aerospace Engineering (2012)

LINKS

- Research Group Website: https://edwardslab.stanford.edu/
- Google Scholar: https://scholar.google.com/citations?user=1yDZAIAAAAAJ&hl=en&authuser=1

Teaching

COURSES

2025-26

- Engineering Thermodynamics: ME 30 (Aut)
- Heat Transfer: ME 131 (Spr)
- Light and Plasma: ME 366, PHOTON 366 (Win)
- Plasma Science and Technology Seminar: AA 296, ME 350 (Aut, Spr)
- Thermofluids, Energy, and Propulsion Research Seminar: ME 390A (Spr)

2024-25

- Heat Transfer: ME 131 (Spr)
- Light and Plasma: ME 366, PHOTON 366 (Win)
- Physical Gas Dynamics: ME 362A (Aut)
- Plasma Science and Technology Seminar: AA 296, ME 350 (Aut, Spr)

2023-24

- Engineering Thermodynamics: ME 30 (Spr)
- Heat Transfer: ME 131 (Aut)
- Light and Plasma: ME 366, PHOTON 366 (Win)
- Plasma Science and Technology Seminar: AA 296, ME 350 (Aut, Spr)

2022-23

- Heat Transfer: ME 131 (Aut)
- Light and Plasma: ME 366 (Spr)
- Plasma Science and Technology Seminar: ME 350 (Spr)
- Thermofluids, Energy, and Propulsion Research Seminar: ME 390A (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jhonnatan Gama Vazquez, Kaden Loring

Orals Chair

Andy Castillo

Doctoral Dissertation Advisor (AC)

Debolina Chakraborty, Ke Ou, Victor Perez-Ramirez, Harsha Rajesh, Caleb Redshaw, Dave Singh

Master's Program Advisor

Taylor Fox, Tanmay Prakash, J.D. Strickland, Enrico Vittori

Doctoral Dissertation Co-Advisor (AC)

Katie Wootten

Doctoral (Program)

Stefano Faubel, Chengze Li