

# Stanford

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## Javier Urzay Lobo

Sr. Research Engineer

Mechanical Engineering

 Curriculum Vitae available Online

### Bio

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#### BIO

Dr. Javier Urzay works as Senior Research Engineer at the Center for Turbulence Research, Stanford University (USA). He obtained his B.Sc./M.Sc. degree in Mechanical Engineering in 2005 from the Carlos III University of Madrid (Spain), and his M.Sc. and Ph.D. degrees in Aerospace Engineering in 2006 and 2010 from the University of California San Diego (USA) working on theoretical aspects of combustion physics and fluid mechanics. His research interests include chemically reacting flows, multiphase turbulent flows, hypersonic aerothermodynamics, supersonic combustion, high-pressure propulsion systems, chemical rockets, and their engineering applications to aeronautics and astronautics. He currently serves in the United States Air Force (USAF) reserves at Travis Air Force Base, California.

#### ACADEMIC APPOINTMENTS

- Sr Research Engineer, Mechanical Engineering

#### PROFESSIONAL EDUCATION

- Ph.D. Aerospace Engineer, University of California San Diego (UCSD) , Theoretical Combustion Physics and Fluid Mechanics (2010)
- M.Sc. Aerospace Engineer, University of California San Diego (UCSD) (2006)
- B.Sc./M.Sc. Mechanical Engineer, Carlos III University of Madrid (Spain) (2005)

#### LINKS

- Research Website: <http://web.stanford.edu/~jurzay/>

### Research & Scholarship

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#### CURRENT RESEARCH AND SCHOLARLY INTERESTS

High-speed, chemically reacting, multi-phase turbulent flows,  
hypersonic aerothermodynamics, supersonic combustion,  
high-pressure propulsion systems, chemical rockets,

and their applications to aeronautics and astronautics.

## Teaching

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### COURSES

#### 2020-21

- Hypersonic Aerothermodynamics: ME 356 (Spr)

#### 2019-20

- Hypersonic Aerothermodynamics: ME 356 (Spr)

#### 2018-19

- Hypersonic Aerothermodynamics: ME 356 (Spr)

#### 2017-18

- Hypersonic Aerothermodynamics: ME 356 (Spr)

## Publications

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### PUBLICATIONS

- **Transcritical diffuse-interface hydrodynamics of propellants in high-pressure combustors of chemical propulsion systems** *PROGRESS IN ENERGY AND COMBUSTION SCIENCE*  
Jofre, L., Urzay, J.  
2021; 82
- **Aerodynamic generation of electric fields in turbulence laden with charged inertial particles** *NATURE COMMUNICATIONS*  
Di Renzo, M., Urzay, J.  
2018; 9: 1676
- **Supersonic combustion in air-breathing propulsion systems for hypersonic flight** *ANNUAL REVIEW OF FLUID MECHANICS*  
Urzay, J.  
2018; 50: 593-627
- **The role of separation of scales in the description of spray combustion** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*  
Sanchez, A. L., Urzay, J., Linan, A.  
2015; 35: 1549-77