

# Victor C. B. Sousa

Ph.D. Candidate - School of Mechanical Engineering  
Purdue University, West Lafayette, IN  
+1 (765) 772-8974 - [vsousa@purdue.edu](mailto:vsousa@purdue.edu)

## EDUCATION

---

- Ph.D. in Mechanical Engineering** 2017 - Present  
Purdue University, West Lafayette, IN, USA  
**Dissertation:** *Numerical Simulations of Hypersonic Boundary Layers: from Transition Control to Compressible Turbulence Modeling*
- B.Sc Mechanical Engineering** 2012 - 2017  
Federal University of Minas Gerais, Belo Horizonte, MG, Brazil  
**Undergraduate Thesis:** *Development of a high-order three-dimensional curvilinear Navier-Stokes solver for simulating acoustic modes in high speed flows*
- Exchange Student in Mechanical Engineering** 2014 - 2015  
Purdue University West Lafayette, IN, USA

## RESEARCH

---

- Graduate Research Assistant** 2017 - Present  
Compressible Flow and Acoustics Laboratory at Purdue University  
**Project:** *Numerical modeling and simulation of hypersonic transition over porous coatings*
- Undergraduate Research Assistant** 2013 - 2014  
Refrigeration and Heating Research Group at Federal University of Minas Gerais  
**Project:** *Modeling and realizing experiments on a direct expansion solar-assisted heat pump with CO<sub>2</sub> as a working fluid*

## AWARDS AND GRANTS

---

- Lynn Fellowship** Purdue University
- Agnelo Macedo Gold Medal** Federal University of Minas Gerais  
Best Student in 2017/2 Class
- Summer Undergraduate Research Fellowship** Purdue University
- Brazilian Scientific Mobility Program** Capes
- Scientific Initiation Fellowship** Fapemig
- Young Talents Program** CNPq

## JOURNAL PUBLICATIONS

---

**Victor C. B. Sousa** and Carlo Scalo, *A Legendre spectral viscosity (LSV) method applied to shock capturing for high-order flux-reconstruction schemes*, submitted to Journal of Computational Physics, Received 12 November 2021.

**Victor C. B. Sousa** and Carlo Scalo, *A unified quasi-spectral viscosity (QSV) approach to shock capturing and large-eddy simulation*, submitted to Journal of Computational Physics, Received 23 March 2021.

**Victor C. B. Sousa**, Danish Patel, Jean-Baptiste Chapelier, Viola Wartemann, Alexander Wagner

and Carlo Scalo, *Numerical Investigation of Second-Mode Attenuation over Carbon/Carbon Porous Surfaces*, Journal Of Spacecraft And Rockets, Vol. 56, No. 2, 2019.

## **CONFERENCE PAPERS/ABSTRACTS**

---

**Victor C. B. Sousa**, Viola Wartemann, Alexander Wagner and Carlo Scalo, *Towards Direct Numerical Simulation of Hypersonic Transition Delay Via Distributed Wall Porosity*, AIAA SciTech, 2019.

Alexander Wagner, Jan Martinez Schramm, Christian Dittert, **Victor C. B. Sousa**, Danish Patel and Carlo Scalo, *Experimental and numerical acoustic characterization of ultrasonically absorptive porous materials*, AIAA Aviation, 2018.

**Victor C. B. Sousa**, Armani Batista, Joe Kuehl and Carlo Scalo, *Nonlinear Dynamics of Second Mode Waves on a Hypersonic Flared Cone*, AIAA Aviation, 2018.

**Victor C. B. Sousa**, Danish Patel, Jean-Baptiste Chapelier, Alexander Wagner and Carlo Scalo, *Numerical Investigation of Second Mode Attenuation over Carbon/Carbon Surfaces on a Sharp Slender Cone*, AIAA SciTech, 2018.

**Victor C. B. Sousa**, Danish Patel, Jean-Baptiste Chapelier and Carlo Scalo, *Second-mode control in hypersonic boundary layers over assigned wall impedance*, 70th Annual Meeting of the APS-DFD, 2017.