



JOHNS HOPKINS  
Center for Environmental  
& Applied Fluid Mechanics

## **FALL 2021 CEAFM VIRTUAL SEMINAR SERIES**

### ***“Towards the Best Practice for Wall-Modeled Large-Eddy Simulation”***

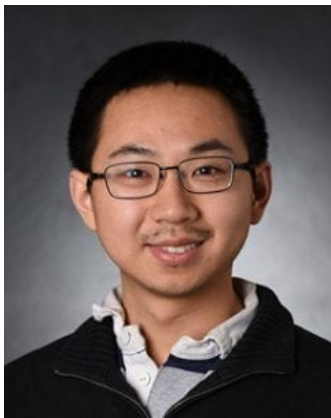
**Presented by Prof. Xiang I. A. Yang**

Pennsylvania State University

Department of Mechanical Engineering

Hosted by Charles Meneveau (MechE)

The ambitious performance goals set by the aerodynamic as well as the turbomachinery industries call for more accurate, scale-resolving simulation tools. A viable path towards industrial-level scale-resolving simulations of flows at high Reynolds numbers is through wall-modeled large-eddy simulation (WMLES). This talk will discuss the best practice in WMLES of problems in which high speed, heat transfer, and non-equilibrium play a role, covering topics including the grid resolution, the LES/wall-model matching location, the low Mach number limit, and the turbulent Prandtl number. Special attention is given to problems at high Mach numbers and the cost of a wall model.



Dr. Xiang Yang is an Assistant Professor at the Mechanical Engineering Department in the Pennsylvania State University - College of Engineering. He received his Ph.D. in Mechanical Engineering from the Johns Hopkins University in 2016. After that, Yang joined the Center for Turbulence in 2016 as a Postdoctoral Research Fellow at the Center for Turbulence Research. He joined Penn State in 2018 and has been an Assistant Professor there since then. His group conducts high-fidelity numerical simulation, builds physics- and data-based models, and finds efficient solutions for real-world engineering problems. His group uses many tools, including direct numerical simulation, large-eddy simulation, Reynolds-averaged Navier Stokes, and more recently, machine learning models.

**Friday, November 12, 2021 at 3:00 PM**

**In-Person Gilman Hall 132**

**<https://wse.zoom.us/j/93762992307>**