

DEPARTMENT OF MECHANICAL ENGINEERING

WILLIAM MAXWELL REED SEMINAR SERIES

“Near-wall modeling for eddy-resolving simulations of turbulent flows.”

Kevin Patrick Griffin, Ph.D. candidate
Center for Turbulence at Stanford University

Abstract:

Scale-resolving simulations of turbulent flows are ones which compute the unsteady evolution of turbulent eddies through spatial and temporal resolution. These simulations are gaining traction in industry as high-fidelity tools for the design of energy and transportation systems. In flows with high Reynolds numbers, the cost of scale-resolving simulations is dominated by the resource requirements of resolving near-wall eddies that are nearly universal across applications and thus amendable to modeling. In this seminar, we will discuss new models for these near-wall eddies. The models are applicable to complex engineering geometries and to flows in which compressibility is important. The accuracy of these models will be evaluated and their impact on overall simulation cost will be quantified.

Speaker Bio:

Kevin Griffin is a Ph.D. candidate at the Center for Turbulence at Stanford University working under the mentorship of Prof. Parviz Moin. Griffin’s research is supported by the National Defense Science and Engineering Graduate Fellowship and the Stanford Graduate Fellowship. He earned his B.S.E. from Princeton University in Mechanical and Aerospace Engineering. His current research interests include the theory and modeling of large-eddy simulation, approximate boundary conditions for turbulent flows near walls, and numerical methods.

Date: Wednesday, February 23, 2022
Place: Whitehall Classroom Building 114

Time: 3:00 PM EST
Contact: Dr. Alexandre Martin 257-4462

Attendance open to all interested persons