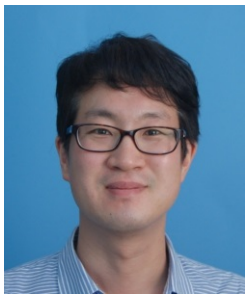
The Math/Stats Colloquium
Department of Mathematics and Statistics
San José State University



Dongwook Lee

UC Santa Cruz

Enhancing numerical methods and their applications for predictive sciences

Wed Oct 26, 2022, MH320

Abstract: We describe a new class of high-order numerical algorithms for computational fluid dynamics called "GP-MOOD." This new finite volume method is based on the Gaussian Processes (GP) modeling that generalizes the Gaussian distribution. Solutions at shocks and discontinuities are handled by an improved Multidimensional Optimal Order Detection (MOOD) strategy. We also discuss a real-world application that develops computer models to study safety mechanisms in the Advanced Photon Source Upgrade at the Argonne National Laboratory.

Background: No background required.

About the speaker: Dongwook Lee is a Professor and Graduate Director of the Applied Mathematics Department at UC Santa Cruz. His research interests emphasize numerical methods for large-scale computing architectures, especially as applied to nonlinear flow problems in astrophysics and high-energy-density physics. He has previously worked at the Flash Center for Computational Science at U. Chicago, and he received his Ph.D. from U. Maryland College Park in 2006.

Snacks served outside between MacQuarrie Hall and Sweeney Hall at 2:40pm (weather permitting)
Talk starts at 3:00pm

For more information, see our full schedule at:

`http://www.timhsu.net/colloq/`