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Elizabeth Kurth

Education

M.S., Aerospace Engineering, Georgia Institute of Technology, 2006

B.S., Aeronautical and Astronautical Engineering, Ohio State University, 2004

Professional Interests

- Fluid mechanics of turbulence
- Computational Fluid Dynamics
- Lagrangian statistics

Relevant Experience

Fluid Mechanics of Turbulence

- Analyzed data of isotropic turbulence compiled from DNS to determine relationships between entropy, dissipation and pseudo-dissipation. This relationship was used to identify the contribution and impact of the strain rate and vorticity of a fluid on the development of a turbulent flow.
- Developed post-processing codes to transform velocity and velocity gradients into a local coordinate system based on the vorticity vector and investigate the theory of particle trapping.

Computational Fluid Dynamics

- Developed several post-processing routines that could compute correlations, frequency spectra and probability density functions as well as the coordinate transformation.
- Part of a research team whose DNS code was used for benchmarking on machines such as IBM's Blue Gene.

Lagrangian Statistics

- Specialized in computing statistics of turbulence in the Lagrangian frame. Increased the database of Lagrangian data available on the 2048³ data set by three times making our research group a leader in high Reynolds number data of Lagrangian data.
- Used Lagrangian statistical data to investigate the particle trapping theory as well as investigate the relationship between enstrophy and strain as a function of Reynolds number.

Professional Affiliations

American Society of Mechanical Engineers

- Member since 2007

American Institute of Aeronautics and Astronautics

- Member since 2005

Publications

Technical Journal

1. P.K. Yeung, S.B. Pope, E.A. Kurth and A.G. Lamorgese, "Lagrangian Conditional Statistics, acceleration and local relative motion in numerically simulated isotropic turbulence," *Journal of Fluid Mechanics*, June 2007, Volume 582, pp. 399-422.

Conference

1. P.K. Yeung, D.A. Donzis, E.A. Kurth and S.B. Pope, "Reynolds number dependence of Lagrangian velocity, acceleration and dissipation statistics in large numerical simulations of isotropic turbulence," 2005 American Physical Society Conference, November 20-22, 2005, Chicago, Illinois.
2. P.K. Yeung, S.B. Pope, E.A. Kurth and A.G. Lamorgese, "Lagrangian Conditional Statistics, acceleration and local relative motion in numerically simulated isotropic turbulence," 2006 American Physical Society Conference, November 19-21, 2006, Tampa Bay, Florida.