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## Special Guest Lectures

**High Order Methods and Engineering Applications****Don Liu, Louisiana Tech University**

Assistant Professor

Johnston Hall 338  
November 22, 2011 - 10:00 am**Abstract:**

Nodal and modal spectral element and compact methods are used to obtain solutions for engineering problems such as particle-fluid interactions in two-phase flows, sediment particles transport and entrainment in shear flows, and fluid resistance induced by flexible vegetation stems (simulated as bendable rigid cylinders) for flood risk reduction in wetlands along the coast. In addition, Boussinesq equations simulating nonlinear water waves in coastal and ocean engineering are solved with a high order compact method. The accuracy of results is demonstrated and efficiency of methods is discussed.

**Speaker's Bio:**

Don Liu is an Assistant Professor at Louisiana Tech University in the Mathematics & Statistics Department. He received his Ph.D. in Applied Mathematics from Brown University. His research interests are Numerical Solutions of PDE, High Order Methods, CFD & Visualizations, Microfluidic Simulations, Two-phase Flow Modeling, Numerical Heat Transfer, Data Assimilation in Computational Geodynamo Modeling, and Applications in Coastal Engineering.

