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**DISTRIBUTED CONTROL FOR COUPLED PROBLEM OF  
NONLINEAR FLUID STRUCTURE INTERACTION**

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The problem of efficient modeling and simulation of the fluid structure interaction undergoing nonlinear deformation has remained a challenging problem in computational science and engineering. In this talk, we will introduce a computational methodology using finite elements that offers the flexibility and efficiency to study coupled problems. An Arbitrary Lagrangian-Eulerian (ALE) formulation is used to move the mesh at each time step for a deformable fluid structure interface. This approach avoids excessive deformation of the mesh near the interface that may occur due to transient dynamic loads. Numerical computations will be presented to validate the performance of the method for benchmark applications involving nonlinear fluid-structure interaction.

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