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**Resolvent analysis of turbulent mixing layers** G S SIDHARTH, Los Alamos National Laboratory — Linear resolvent analysis techniques have been successfully used in literature to study coherent structures in turbulent boundary layers and jets. In this work, we carry out resolvent analysis of turbulent mixing layers in self-similar co-ordinates. Two mixing layer configurations a shear-driven mixing layer and a buoyancy-driven mixing layer are considered. The turbulent mean profiles are obtained using large-eddy simulations. The resolvent mode structures in buoyancy-driven mixing layer are contrasted with the shear-driven case due to different turbulence production mechanisms. The effect of mean density contrasts in the mixing fluids is also investigated. Using the resolvent framework, an emphasis is made to reconstruct the energetic structures in late-time turbulent fields using the information of the initial perturbation seeds.

Sidharth GS  
Los Alamos National Laboratory

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