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*Development of a Heuristic for Optimizing Computational Modeling of Coupled Viscous/Inviscid Flows with Cross-Stream Flow for 3D Geometries*

**Abstract:**

One computational approach for flows with both viscous and inviscid flows is to separately model the behaviors and couple them across the boundary layer. This coupling can be dominated by small regions of the whole, especially in 3D geometries where cross-stream flows may be present. To minimize required computation it is proposed that a heuristic algorithm will be developed to identify these regions and optimize coupling to ensure convergence while limiting the total coupling required.