Real-Time Reduced Order Modeling Using Time Dependent Subspaces[1] MICHAEL DONELLO, HESSAM BABAEE, University of Pittsburgh — We present real-time reduced-order models for deterministic/stochastic systems constructed by projection of the full-dimensional dynamics onto a time-dependent basis. To this end, we leverage a scalable algorithm to extract time dependent modes from highly transient data sets. We will present two case studies for the reduced-order modeling of: (1) transient instabilities in Kuramoto-Sivashinsky equation, and (2) transient flow over a bump. The results will be compared to a reduced-order model constructed using static (i.e. time invariant) POD modes.

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