

## **Accelerating analyst workflows via alternating Schwarz-based coupling and model order reduction**

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This talk will describe a novel domain decomposition-based approach for creating adaptive hybrid models with the help of the Schwarz alternating method (SAM). In this approach, the solution on the full domain is obtained via an iterative process in which a sequence of subdomain-local problems are solved, with information propagating between subdomains through transmission boundary conditions (BCs). The models being coupled can be subdomain-local full order models (FOMs) and/or subdomain-local reduced order models (ROMs). We will present some recent extensions of SAM to enable the overlapping and non-overlapping coupling of non-intrusive ROMs constructed via Operator Inference (OpInf). We will show numerical results that demonstrate the SAM's potential to accelerate analyst workflows by simplifying the meshing step of the mod/sim process and by enabling the “plug-and-play” integration of data-driven models into mod/sim workflow. Time permitting, we will additionally discuss some perspectives towards enabling on-the-fly switching between subdomain-local models of varying fidelities within the SAM framework.