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Dynamics of the Molten Salt Fast Reactor Through Parametric Dynamic Mode Decomposition

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This research presents a parametric extension of Dynamic Mode Decomposition (pDMD) applied to Molten Salt Fast Reactor dynamics analysis. The work addresses the computational limitations of Full-Order Models in nuclear reactor system evaluation, where discretized partial differential equations provide high accuracy at significant computational cost.This work contributes to the broader development of reduced-order modeling techniques for nuclear reactor analysis, addressing the need for computationally efficient models suitable for multi-query applications, design optimization, and real-time monitoring systems.

Technical Track

Reactor Physics

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