

Learning Dynamics of STEM by Enforcing Physical Consistency with Phase-Field Models

Tuesday, 14 September 2021 19:00 (2 hours)

In this poster, we present our research goals of a recently BiGmax funded project towards learning dynamics of scanning transmission electron microscopy (STEM) by incorporating physical consistency with phase-field models. The primary idea of this project is to develop machine learning (ML)-based modeling of an interpretable coarse-grained dynamic model utilizing in situ STEM video sequences fulfilling a suitable dynamical phase-field equation. The modeling approach aims to discover governing equations by utilizing the video sequence data and prior physics knowledge that is directly compatible with analytic theories or subsequent ML-based analysis.

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