Publications

- Daniel A Messenger, Joshua W Burby, and David M Bortz. Coarse-graining Hamiltonian systems using WSINDy. *(In review)* arXiv preprint arXiv:2310.05879, 2023

- April Tran, Xiaolong He, Daniel Messenger, Youngsoo Choi, and David M Bortz. Weak-form latent space dynamics identification. *(In review)* arXiv preprint arXiv:2311.12880, 2023

- Gina Vasey, Daniel Messenger, David Bortz, Andrew Christlieb, and Brian O'Shea. Influence of initial conditions on data-driven model identification and information entropy for ideal mhd problems. *(In review)* arXiv preprint arXiv:2312.05339, 2023

- Daniel A Messenger and David M Bortz. Asymptotic consistency of the WSINDy algorithm in the limit of continuum data. *(In revisions)* arXiv preprint arXiv:2211.16000, 2022

1. David M Bortz, Daniel A Messenger, and Vanja Dukic. Direct estimation of parameters in ODE models using WENDy: Weak-form estimation of nonlinear dynamics. Bulletin of Math. Bio., 80, October 2023

2. Daniel A Messenger, Graycen E Wheeler, Xuedong Liu, and David M Bortz. Learning anisotropic interaction rules from individual trajectories in a heterogeneous cellular population. Journal of the Royal Society Interface, 19, October 2022

3. Razvan C. Fetecau, Hui Huang, Daniel Messenger, and Weiran Sun. Zero-diffusion limit for aggregation equations over bounded domains. Discrete & Continuous Dynamical Systems, Oct. 2022

4. Daniel A. Messenger, Emiliano Dall'Anese, and David Bortz. Online weak-form sparse identification of partial differential equations. In PMLR, 15–17 Aug 2022

5. Daniel A. Messenger and David M. Bortz. Learning mean-field equations from particle data using WSINDy. Physica D: Nonlinear Phenomena, page 133406, July 2022

6. Daniel A. Messenger and David M. Bortz. Weak SINDy For Partial Differential Equations. Journal of Computational Physics, 443:110525, October 2021

7. Daniel A. Messenger and David M. Bortz. Weak SINDy: Galerkin-Based Data-Driven Model Selection. SIAM Multiscale Modeling & Simulation, 19(3):1474–1497, Sept. 2021

8. Daniel Messenger and Razvan C. Fetecau. Equilibria of an aggregation model with linear diffusion in domains with boundaries. Mathematical Models and Methods in Applied Sciences, 30(04):805–845, April 2020