Contribution ID: **9** Type: **not specified**

Domain-Aware Gaussian Processes and High-Performance Mathematical Optimization for Optimal and Autonomous Data Acquisition

Monday, 18 October 2021 15:40 (20 minutes)

Gaussian Processes and Gaussian-Process-Related stochastic processes have shown to be a powerful tool for autonomous control of data acquisition due to their robustness, analytical tractability, and natural inclusion of uncertainty quantification. In this talk, I want to present our work on a general, flexible, and powerful GP-driven framework for autonomous data acquisition. The focus will lie on making Gaussian processes domain aware, how this awareness can be used for decision-making, and the computational and mathematical challenges that come with domain awareness.

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Session Classification: New algorithms and Machine learning: relevance to inelastic neutron scattering (Chair: Toby Perring)