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Precision study of critical slowing down in lattice simulations of the CP^{N-1} model

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With the aim of studying the relevance and properties of critical slowing down in Monte Carlo simulations of lattice quantum field theories we carried out a high precision numerical study of the discretised two-dimensional CP^{N-1} model at $N=10$ using an over-heat bath algorithm. We identify critical slowing down in terms of slowly-evolving topological modes and present evidence that other observables couple to these slow modes. This coupling is found to reduce however as we increase the physical volume in which we simulate.

Primary author: Mr LAWSON, Andrew (University of Southampton)

Co-authors: Dr JUETTNER, Andreas (University of Southampton); Dr SANFILIPPO, Francesco (University of Southampton); Prof. FLYNN, Jonathan (University of Southampton)

Presenter: Dr JUETTNER, Andreas (University of Southampton)

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