

Abstract Submitted  
for the 4CF13 Meeting of  
The American Physical Society

**A Minimal Model to Relate Dynamics to Entanglement** JOHN GARDINER, JEAN-FRANCOIS S. VAN HUELE, Brigham Young University — Quantum entanglement is a correlation between systems beyond what is possible classically. There are multiple distinct ways for systems to be entangled with each other. When systems interact the particular entanglements that arise between them are dictated by the dynamics of the interaction. With different dynamics leading to possibly different entanglement, we can ask what the entanglement says about the dynamics that caused it. Can we understand interactions in terms of the entanglements they form? To explore this question, we propose a minimal model of a system and its environment consisting of three qubits with spin interactions. We relate the structure of the model's dynamics with the complexity of the resulting entanglement.

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Date submitted: 21 Sep 2013

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