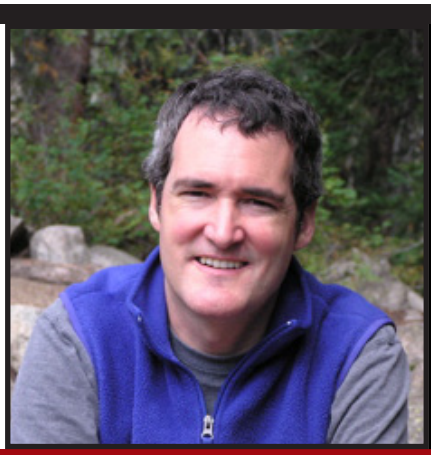
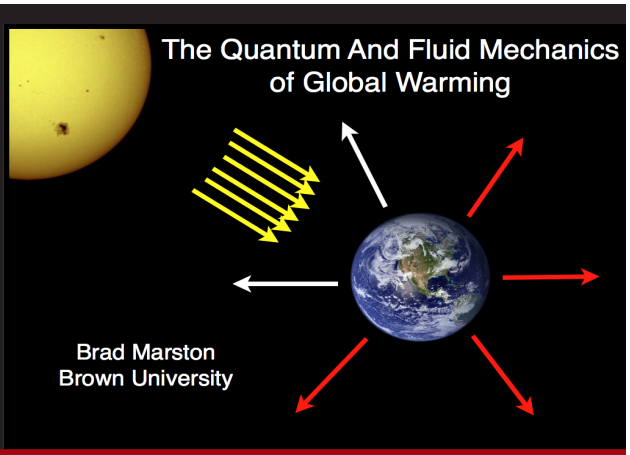
3:30 pm • Friday September 16, 2011 • 2241 Chamberlin Hall • Coffee at 4:30 pm

Brad Marston

Brown University





The Quantum and Fluid Mechanics of Global Warming

Department of Physics Colloquium

WISCONSIN

Quantum mechanics plays a crucial, albeit often overlooked, role in our understanding of the Earth's climate. In this talk three well known aspects of quantum mechanics are invoked to present a simple physical picture of what will happen as the concentrations of greenhouse gases such as carbon dioxide continue to increase. Historical and paleoclimatic records are interpreted with some basic astronomy, fluid mechanics, and the use of fundamental laws of physics such as the conservation of angular momentum. Live simulations will illustrate the basic physical principles governing large scale atmospheric circulation. I conclude by discussing some possible ways that physics might be able to contribute to a deeper understanding of climate change.

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