

# *IMAGE Seminar*

*Institute for Mathematics Applied to Geosciences at NCAR*

## **A Universal Short-time Method for Linear Fluctuation-response**

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### **Abstract:**

In the context of the classical fluctuation-dissipation theorem, the average linear response to external fluctuations is represented as a simple time autocorrelation function of an unperturbed dynamical system, which is easy to compute numerically via time averaging along a single long-time trajectory. However, the majority of real-world climate models are chaotic forced-dissipative nonlinear systems with complex dynamics, for which the fluctuation-dissipation theorem in its classical setting is not valid. We present the universal linear response approach which is valid for any dynamical system, but works only for a short time.

**Mesa Lab- Chapman Room**  
**Thursday, December 7, 2006**  
**2:30pm** (Refreshments served at 2:15pm)