

***Eastern Section and Great Lakes Section of the SEPM
Joint Reception and Keynote Address by:***

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**“Understanding Internal Dynamics in Sedimentary Systems
for Interpretation and Prediction”**

Sunday, 19 March 2017, 5:30 to 7 PM
Monongahela Room (Omni William Penn Hotel, 17th floor)

Abstract

Internal, or autogenic, dynamics in sedimentary systems impart significant variability in sedimentation through space and time across landscapes and marine environments. These processes can even produce structured or organized depositional patterns that mimic stratigraphy generated by climate or tectonic forcing. Identifying deposits that resulted primarily from internal dynamics in a given depositional setting and differentiating deposits caused by changes in climate or tectonics are key challenges to sedimentary geologists aiming to interpret Earth history or predict the architecture of sediments in the subsurface. Recent work has demonstrated that statistical approaches may be useful for identifying autogenic scales in fluvial and deltaic deposits. These methods provide tools for identifying which sedimentary deposits are best characterized by stochastic models that reflect sediment-transport dynamics, and which deposits primarily reflect changes in the balance of sediment supply and accommodation creation caused by climate, tectonic, and sea-level changes. This perspective serves as a practical way of improving landscape interpretations from sedimentary deposits, building predictive models of subsurface heterogeneity, and constraining uncertainty associated with paleoclimate and tectonic reconstructions from sedimentary deposits.