

## [SESYNC Seminar] The 4th Paradigm: Connecting Learners to Complex Science



**Presenter:**

Dr. Stephen Uzzo, Vice President of Science and Technology, New York Hall of Science

**Time of Event:**

Tuesday, March 12, 2013 - 12:30

SESYNC - 1 Park Place, Suite 300, Annapolis, MD

The rapid acceleration of 21<sup>st</sup> century science has revealed that nature is rife with complexity, but the gap between science practice and science education is widening.

In the 21<sup>st</sup> century, we have transitioned from modeling abstract ideas in nature, then gathering data from nature to compare with our models, to managing, modeling, and making discovery in massive amounts of streaming data and processes captured from nature in cyberinfrastructures. Jim Gray calls this "The 4th Paradigm," or "eScience." Scientists employ an array of advanced methods to manage, analyze, and visualize vast data streams, but little of these techniques translate well for citizens and

policymakers. For STEM learners to get their minds around the complexity of such topics as network, proteomic, sustainability and earth systems sciences, information sciences, and social systems dynamics requires deepening our understanding of how people learn, as well as finding ways to connect learners to the tools and techniques to manipulate, analyze, and extract useful knowledge from what NSF now calls Big Data. I will talk about the trends in science research and relevant projects we are undertaking to address the gap.

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