



## Novel Approaches to Visualization

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**Abstract:** Scientific visualization is the process of visually extracting meaning from scientific data. This broad definition implies a continuum of approaches. At one extreme, visualization is simply a mode of presentation of previous results: a table or graph in a publication, an image or video in a slide show or on the web. At the other extreme, visualization is an interactive tool for experimentation: an environment that fosters further discovery by visually validating hypotheses and suggesting new ones. In this talk, we will explore the latter scenario within the context of scientific petascale data, and present novel approaches to visualization that scale with data size and maximize information content.

**Bio:** Tom Peterka graduated from the University of Illinois at Chicago (UIC) in 2007 with a Ph.D. in computer science engineering. As a student, he researched the use of virtual environments for scientific visualization at the Electronic Visualization Laboratory (EVL) at UIC. In his Ph.D. dissertation, Peterka invented a new method of producing autostereoscopic display systems (3D without glasses) by introducing a programmable, active parallax barrier that offers greater flexibility than previous methods. He joined ANL in mid-2007 as a postdoctoral appointee in the Radix Laboratory for Scalable Parallel Systems Software, in the Mathematics and Computer Science Division, where he is currently researching the efficacy of performing visualization on leadership-class architectures such as the IBM Blue Gene/P. He enjoys scaling graphics algorithms up to the maximum number of available processors and viewing the results in real-time.