

Stochastic Local Interaction Models for Spatiotemporal Data



**Pacific Northwest National Laboratory
Computational Sciences & Mathematics Division Presents:**



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Mineral Resources Engineering
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Dr. Hristopulos' presentation will focus on the interpolation and simulation of scattered spatial observations as well as missing data on regular grids via Spartan spatial random fields, or SSRFs. SSRFs can be derived from a Gaussian statistical field theory that includes both gradient and curvature terms or from stochastic (Langevin) partial differential equations driven by Gaussian white noise. In contrast to field theory, SSRFs focus on short-range correlations instead of long-range properties near critical points. As part of the talk, SSRF applications to real and simulated data sets will be presented and ongoing research that extends SSRFs to spatiotemporal data and perspectives for future developments will be discussed.

Dr. Hristopulos, a professor and head of the Department of Mineral Resources Engineering's Geostatistics Research Unit at the Technical University of Crete (Chania, Greece), leads research in the development of new geostatistical methods and applications in mineral resources exploration, petroleum reservoir simulation, environmental monitoring, and GIS mapping functions. His other research interests include applying geostatistical and statistical physics techniques in stochastic hydrology; assessing the impact of heterogeneity on mechanical properties of porous materials, such as advanced ceramics; and investigating probability laws of earthquake return times and geostatistics applications for analysis of correlations between seismic events on different faults of the same system. He received his Ph.D. in physics from Princeton University in 1991.

Hosted by: Dr. Guang Lin, 509-372-6596

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**Location: ISB II
Wanapum Room
(155)**

Time: 10 AM