

The Colorado State University Computer Science Department presents:

# Algorithms Support for Monitoring of Subsurface Contaminant Using Wireless Sensor Networks

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## **Abstract**

The emerging wireless sensor networking technologies have the potential to keep track of subsurface contaminant plumes and predict future plumes behavior in real-time. However, our proof-of-concept tank experiments conducted in a lab indicate that many challenges arise when designing such an automated monitoring system. In this talk, I will present several distributed algorithms we developed to address two of these challenges: (a) how to detect and track complex events with dynamic signatures and (b) how to deal with data uncertainty inherent in wireless sensor networks. I will also briefly discuss distinguished features of these algorithms based on theoretical analysis and demonstrate the viability of our approach using results from coupling with subsurface transport models.

## **Bio**

Qi Han has been an Assistant Professor in the Department of Mathematical and Computer Sciences at Colorado School of Mines since 2005. She received her Ph.D. degree from the Donald Bren School of Information and Computer Science at the University of California, Irvine in 2005. Her research interests include wireless sensor networks, mobile and pervasive computing, network-aware data management, and distributed algorithms. She has been focusing on the design, implementation, and evaluation of algorithms, services, and applications in large scale cyber-physical systems with heterogeneous devices, varying connectivity, different computation and storage resources.