

Penn State Great Valley Research Showcase

Identification of Vulnerabilities in Fragile Networks

Wednesday, February 10, Noon to 1:00 p.m., Main 228

Presenter: Patrick Qiang, Ph.D., Penn State Great Valley, Assistant Professor, Operations Management

Since 2000, there has been a marked escalation of disasters, natural or man-made, which has caused severe destruction to critical infrastructure networks, costing millions of lives and property loss and huge negative impacts to economies. To effectively protect infrastructure networks, it is imperative to understand the vulnerable parts of networks. In this presentation, some recent research results on a network efficiency/performance measure are discussed. The new network measure is shown to have advantages over existing measures. The measure will be then applied to analyze the criticality of network components as well as network robustness. The proposed tool can be used to evaluate and protect such critical infrastructure networks as the transportation networks and supply chain networks.

Patrick Qiang (Ph.D., University of Massachusetts Amherst) joined Penn State Great Valley in 2009. Dr. Qiang's research interests include network vulnerability and robustness. He developed network performance/efficiency measures that have been applied to supply chain, transportation, finance networks, and the Internet. His research has appeared in numerous journals and he also co-authored "Fragile Networks: Identifying Vulnerabilities and Synergies in an Uncertain World."

The Penn State Great Valley School of Graduate Professional Studies' Research Showcase highlights the research projects of our faculty. This free presentation is open to faculty, staff, students, and the community. Seating is limited; please RSVP to Cathy O'Neill at cxo10@psu.edu or call 610-725-5324.



School of Graduate Professional Studies
30 East Swedesford Rd., Malvern, PA 19355
www.sgps.psu.edu ■ 610-648-3200