

## TALK ANNOUNCEMENT

**Seminar Series:** The Science of Complex Networks (description below)

**Speaker:** Srinivasan Parthasarathy, Dept. of Computer Science, University of Maryland, College Park

**Title:** Algorithmic Aspects of Communication in Wireless Networks

**Abstract:** Please see below.

**Date & Time:** Wednesday, November 2, 2005. 4:00-5:00 PM

**Location:** CRC, Building XV, Conference room 2018

**Web:** <http://ndssl.vbi.vt.edu/seminars>

---

### Abstract

Interference imposes fundamental limits on the capacity of wireless networks. Recent measurement studies have shown the need for wireless communication protocols with a significant interaction across different layers of the protocol stack, in order to effectively deal with the performance problems posed by interference. In this talk, I will present techniques for designing provably-good interference-aware algorithms for wireless networks. Specifically, I will present routing and scheduling algorithms under the Tx-model of interference, for “jointly” maximizing end-to-end throughput or minimizing packet delays in wireless networks. Our algorithmic techniques can be generalized to many other models of wireless interference, and constitute a unified analytical framework for cross-layer optimization in wireless networks.

---

### Seminar Series: “The Science of Complex Networks”

This seminar series is organized by the group NDSSL at VBI (<http://ndssl.vbi.vt.edu>). The theme of the seminar is mathematical and computational aspects of dynamics over large graphs. Examples include the dynamics on networks in communication, urban traffic systems, and networks arising in biological systems such as the molecular networks in the genome and the immune system.

The systems and network models that come from these various areas describe very different phenomena and dynamics and may seem to have little in common. Contrary to this intuition, there are large classes of models with fundamental similarities in both structure and dynamics. This common and generic structure has already motivated research, and is an extremely active area of current research.

The seminars will have a formal flavor, and at least proof ideas and outlines will be encouraged. Presentations of experimental data and findings displaying interesting phenomena that point to possible general results are also welcome.