

STATISTICS COLLOQUIUM

WEDNESDAY, OCTOBER 10, 2007

TALK: 4:00 PM — SCIENCE CENTER – Rm. 705

RECEPTION: 5:15 PM — SCIENCE CENTER, 7th Floor

“Dependence in Multiple Testing”

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ABSTRACT

In this talk, I will describe recent developments aimed at capturing and fully utilizing dependence structures in multiple significance testing. The optimal discovery procedure (ODP) has recently been introduced as a framework for optimally testing multiple hypotheses. The ODP directly utilizes all relevant dependence in signal across tests to satisfy an optimality criterion closely related to false discovery rates. I will also discuss the recently introduced surrogate variable analysis (SVA) as a method for identifying, estimating, and utilizing large-scale dependence in the "noise" across multiple tests. I will show that the ODP and SVA offer substantial improvements over status quo techniques. Describing the connection between these ideas will involve extensions of what has traditionally been considered as dependence in multiple testing. This is partially joint work with Jeffrey Leek.

LINK: <http://www.genomine.org/publications.html>