

## DEPARTMENT OF STATISTICS COLLOQUIUM SERIES

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## **VARIANCE STABILIZED STATISTICAL TESTS**

### **ABSTRACT:**

Despite some fundamental flaws, which were pointed out by many statistical researchers, it remains true that Fisher's p-value is the most popular tool for communicating the outcome of a statistical test. In this talk I argue that the normal deviate (probit) corresponding to the p-value is a better choice, provided that the test statistic is adequately normalized. The normalization has to be such that the distribution of the test statistic is approximately normal with unit variance not only when the null hypothesis is true, but for all alternatives.

In the second part of the talk, we discuss some implications of the strong normalization discussed above. First, the combination of separate tests of the same null hypothesis (called meta analysis in medical statistics), becomes a trivial task. Second, we will show that the symmetric Kullback-Leibler divergence is the natural distance between hypotheses and alternative and describe the associated test statistics.

**DATE:** Thursday, November 19, 2009

**TIME:** 11:10 a.m. – 12:10 p.m.

**PLACE:** Room 150, Blocker

Refreshments will be served in the Statistics Conference Room at 10:30 am for those attending the seminar.