

RUTGERS UNIVERSITY  
DEPARTMENT OF STATISTICS AND BIOSTATISTICS  
HILL CENTER #501, BUSCH CAMPUS, PISCATAWAY

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**Seminar**

- Speaker:** Stephan Morgenthaler, (EPFL) Swiss Federal Institute of Technology, Switzerland
- Title:** Variance Stabilized Statistical Tests
- Date:** Wednesday September 23, 2009
- Time:** 3:20 PM
- Place:** 552 Hill Center

**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 for all alternatives. For illustration, we are going to consider some elementary and much used tests.

In the second part of the talk, we discuss the 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 describe the associated test statistics.