Department of Mathematical Sciences
The University of Texas at El Paso

Colloquium

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Friday, March 2, 2012 at 3 pm in Bell Hall 143

Multiple hypotheses testing in sequential experiments

The problem of multiple hypotheses testing often arises in sequential experiments such as sequential clinical trials with more than one endpoint, multichannel change-point detection, acceptance sampling with different criteria of acceptance, etc. In such experiments, it is necessary to reach a statistical decision for each individual hypothesis instead of combining them and giving one answer to the resulting composite hypothesis.

Non-sequential methods of multiple comparisons are already well developed. There are known Holm, Hommel, Benjamini-Hochberg, Guo-Sarkar, and other methods that can control the familywise error rate. At the same time, classical sequential tests (for example, SPRT) are able to control probabilities of both the Type I and Type II errors.

Combining classical ideas of sequential testing with non-sequential stepwise methods for multiple comparisons, we develop procedures for conducting tests of multiple hypotheses sequentially. Proposed methods control both Type I and Type II familywise error rates, or familywise power, in the strong sense. Further, we attempt to minimize the expected sample size (expected cost) of the experiment under these constraints. Asymptotic optimality is achieved under the Pitman alternative.

For further information, please contact Dr. Emil Schwab, eschwab@utep.edu
Refreshments will be served in front of the colloquium room,
15 minutes before the start of the colloquium.