

THE DEPARTMENT OF MATHEMATICAL SCIENCES PROUDLY PRESENTS

# COLLOQUIUM

FALL 2013

## Changing the paradigm: The Adaptive $\alpha$ Significance Level and other Bayes/Non-Bayes compromises for hypothesis testing

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### ABSTRACT

Traditional approaches to hypothesis testing are based on the “Significance Principle”, according to which the observed significance (tail probabilities) against a hypothesis has comparable interpretation for different sample sizes and amounts of (Fisher) information. Instead, the “Posterior Probability Principle” states that the probability of a hypothesis and a model has comparable interpretations for different sample sizes and amounts of (Fisher).

In this talk, we propose approaches consistent with the Posterior Probability Principle. First, an “adaptive alpha” which changes with the amount of sample information will be presented. This calibration, proposed by Pérez and Pericchi (2013) may be interpreted as a Bayes/non-Bayes compromise, and leads to statistical consistency. The calibration can also be used to produce confidence intervals whose size take in consideration the amount of observed information, with a potential radical simplification of Bayesian Testing, using computer packages that only produce intervals. Some examples will be presented. Finally, another Bayes/non-Bayes compromise based on an idea proposed by Morris DeGroot (1975) and developed by Pericchi and Pereira will be introduced.

Monzón Building, Room 201, 10:30 AM  
Refreshments will be served  
15 minutes before the colloquium, M203

