

Colloquium
Michigan State University
Department of Statistics and Probability

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Plausibility functions and exact frequentist inference

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10:20 a.m. - 11:10 a.m.
Refreshments 10:00am
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Abstract

In the frequentist program, inferential methods with exact control on error rates are a primary focus. Methods based on asymptotic distribution theory may not be suitable in a particular problem, in which case, a numerical method is needed. In this talk I shall present a general, yet simple, framework for the construction of frequentist procedures based on plausibility functions. It is proved that the suitably defined plausibility function-based tests and confidence regions have desired frequentist properties. Moreover, in an important special case involving likelihood ratios, conditions are given such that the plausibility function behaves asymptotically like a consistent Bayesian posterior distribution. An extension of the proposed method is also given for the case where nuisance parameters are present. I shall give several examples to illustrate the method's flexibility and to demonstrate its performance compared to existing numerical and analytical methods.