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Conditions for Minimax Designs

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3:30pm - 4:30pm, CHS 33-105A

Refreshments served at 3:00 PM in room 51-254 CHS

ABSTRACT: In optimum design of experiments a criterion function is minimized. Criterion functions used are often a function not only of the design, but also of the parameters the researcher wants to make inference about. In those cases the construction of an optimum design requires knowledge of unknown parameters. One approach out of this dilemma is using optimum on-the-average designs, which uses a weighted average of criterion functions, each criterion function being evaluated at a guessed parameter values. Another approach is using minimax designs. A minimax design minimizes the maximum of the criterion function as the unknown parameters vary in a specified subset of the parameter space. The minimax approach has shown to be mathematically intractable and it is in general difficult to construct minimax designs. In this talk I consider some relations between optimum on-the-average designs and minimax designs. With these relations clarified, it is possible to show a condition for a design to be minimax. Also, the results suggest an algorithm for construction of minimax designs which I will describe.