Optimal Design of a Problem in Spatial Ecology

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Abstract. *The talk is mainly concerned with the application of optimal design concepts in the area of biodiversity. Statistical techniques for detecting spatial patterns in the distribution of species richness now have some long tradition in this field, specifically the use of correlograms. The issue of where (and when) to undertake observations has but only rarely been treated. In this work we aim to extend the existing literature with techniques on finding good designs to optimize the power of tests for spatial dependence. Special emphasis will be given to the difference in using the exact distribution of Moran's I and its normal approximation in this context. Two illustrative artificial examples will be followed by a real case analysis from the ecological literature.*

Keywords. *Optimal design; Spatial patterns.*
