

SEMINARIO

Fabrice Gamboa

IMT, Université Paul Sabatier, Toulouse

Approximate optimal designs for multivariate polynomial regression

Abstract: We introduce a new approach aiming at computing approximate optimal designs for multivariate polynomial regressions on compact (semi-algebraic) design spaces. We use the moment-sum-of-squares hierarchy of semidefinite programming problems to solve numerically the approximate optimal design problem. The geometry of the design is recovered via semidefinite programming duality theory. This article shows that the hierarchy converges to the approximate optimal design as the order of the hierarchy increases. Furthermore, we provide a dual certificate ensuring finite convergence of the hierarchy and showing that the approximate optimal design can be computed numerically with our method. As a byproduct, we revisit the equivalence theorem of the experimental design theory: it is linked to the Christoffel polynomial and it characterizes finite convergence of the moment-sum-of-square hierarchies.

**Seminario A119, Facultad de Ciencias
19 de Octubre de 2018 (12:00)**

Organiza: G.I.R. Probabilidad y Estadística Matemática

