

Constrained optimal discrimination designs for Fourier regression models

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Abstract In this article, the problem of constructing efficient discrimination designs in a Fourier regression model is considered. We propose designs which maximize the power of the F -test, which discriminates between the two highest order models, subject to the constraints that the tests that discriminate between lower order models have at least some given relative power. A complete solution is presented in terms of the canonical moments of the optimal designs, and for the special case of equal constraints even more specific formulae are available.

Keywords Constrained optimal designs · Trigonometric regression · D_1 -optimal designs · Chebyshev polynomials · Canonical moments