Designs for fractional polynomials

Luzia A. Trinca [1]

Abstract: *Fractional polynomial (FP) of low order has great potential for response surface studies. However usual experiments often use few equally spaced levels for the factors and may not have enough information to estimate the extra parameters needed. As defined by Royston and Altman (1994), for each degree and factor, the the FP has a power parameter to estimate, besides the regression coefficient. In this work we use a more parsimonious second order FP (as function of just one power parameter) and obtain optimum designs for fitting such type of models. As the model is non-linear we need to incorporate prior information for the parameters. We then investigate the behaviour and sensitivity of optimum designs for several scenarios.*

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[1]Departamento de Bioestatística, IB, Unesp, Botucatu. e-mail: *luzia.trinca@unesp.br*