

A systematic approach for the construction of definitive screening designs

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Abstract

Definitive screening (DS) designs, first proposed by Jones and Nachtsheim (2011), draw numerous attentions from the researches of designs of experiments due to its good design properties and run-size economy. This paper investigates in the structure of DS designs and suggests a theoretically-driven approach to construct DS designs for any number of run size. This approach is applicable for both even and odd number of factors. The D -efficiencies of some DS designs constructed via our approach are equivalently optimal to existing theoretical results and higher than those reported in Jones and Nachtsheim (2011) and Xiao *et al.* (2012).