

CONSTRUCTION OF CLASS OF SATURATED, SUPER-SATURATED DESIGNS

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ABSTRACT

A supersaturated design is a fractional factorial design in which the number of factors is more than the number of design points and the degrees of freedom for all its main effects and interaction terms exceed the number of design points. The advantage of these designs is that they reduce the experimental cost and time significantly due to their run size. These designs used to identify active factor main effects when experimentation is expensive and the number of potential factors is large. These designs are more economical and flexible because of their run size. Satterthwaite (1959), initially made an attempt to construct saturated designs randomly and suggested the random balance designs. Booth and Cox (1962) initially proposed a systematic method for the construction of super-saturated designs, which are factorial designs in which the number of factors exceeds the number of design points and also computed $E(s^2)$ criterion. Later Several researchers made attempts on the construction of Saturated, super-saturated and super-saturated designs with $E(s^2)$. In this talk, some methods for the construction of these classes of saturated and super-saturated design will be discussed with illustrated with suitable examples using various incomplete block designs.

Key words: $E(s^2)$ optimality, BIBD, PBIBD. RCD, BD.