Bayesian Mixture Designs for Hypothesis Testing

Manisha Pal[1]*,N.K. Mandal[1]

[1]Department of Statistics, University of Calcutta, Calcutta, India
manishapal2@gmail.com; nripes@gmail.com

Abstract

Scheffé (1958) first introduced models of different degrees to represent the response function in a mixture experiment. He also introduced corresponding designs for the estimation of the model parameters. Later, several authors studied the problem of finding optimum designs, especially for quadratic and cubic models. In this paper, we consider the problem of designing an optimal mixture experiment for the purpose of performing one or more hypothesis tests in a first-degree mixture model. The Bayesian decision theoretic approach is used for this purpose.

Keywords: mixture experiments, hypothesis testing, Bayes optimality, normal prior, optimum designs.

*Corresponding author.