K-optimal designs for Cubic Polynomial Models for Mixture Experiments

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Abstract: This article obtains K-optimal designs for cubic polynomial models for mixture experiments. The main objective behind the construction of the K-optimality criterion is to avoid the multicollinearity problem and related issues. The analytical solutions for the cubic polynomial models have been obtained. A few numerical examples are also discussed to support the utility of the obtained result.

Key Words: K-optimal design, Cubic polynomial model, Mixture experiment, Multicollinearity.