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ON A CHARACTERIZATION OF T-DESIGNS

A Thesis
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ABSTRACT

This thesis is an exposition of Sylvia Hobart's article "On a Characterization of t-designs in terms of the Inner Distribution."

An inequality for 0-designs is derived which holds with equality, if and only if the design is a t-design where $0 \leq t \leq k$. This inequality is then applied to the case of regular designs; that is designs in which the number of blocks intersecting a given block in a given number of points is a constant. This analysis is used to characterize the Steiner system $S-(4,7,23)$ in terms of the derived design at two points.

A thorough discussion on designs as well as the details of the proofs found in Hobart's article are presented in this thesis. Examples are constructed for better understanding.

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