Steiner triple systems with Veblen points

Mario Galici[(1)]

[(1)] University of Salento, Lecce, Italy

A Steiner triple system, STS(v), is a $2-(v,3,1)$ design. A *Veblen point* of an STS is a point for which any two other distinct points generate a Pasch configuration. Steiner triple systems given by the point-line design of a projective space PG$(n,2)$ are precisely those in which every point is a Veblen point.

Steiner loops provide a natural algebraic framework for studying Steiner triple systems. We focus on their *Schreier extensions*, which offer an effective method for constructing Steiner triple systems with Veblen points. This concept was first introduced for loops in general in [1], and later explored in the context of Steiner loops in [2]. In particular, in [3] we investigate Veblen points in Steiner triple systems of orders 19, 27, and 31, determining their number and giving concrete examples.

References

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