

# ON THE NUMBER OF SMALL STEINER TRIPLE SYSTEMS WITH VEBLLEN POINTS

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A *Veblen point* in a Steiner triple system  $\mathcal{S}$  is a point with the property that, for any other pair of distinct points in  $\mathcal{S}$ , they generate a *Pasch configuration*. STS( $2^{n+1} - 1$ )s given by the point-line design of a projective space  $\text{PG}(n, 2)$  are characterized by the fact that every point is a Veblen point. Actually, projective spaces over  $\text{GF}(2)$  are the only STS( $v$ )s with more than  $\frac{v-7}{8}$  Veblen points.

The concept of *Schreier extensions* of loops was presented in the general case in [3] and, more recently, it has been explored in the context of Steiner loops in [1]. In the latter case, it gives a powerful method for constructing Steiner triple systems containing Veblen points. In this work, we deal with Veblen points within Steiner triple systems of orders 19, 27 and 31, determining the number of such systems and presenting some examples.

## References

- [1] G. Falcone, A. Figula and M. Galici, *Extensions of Steiner loops*, submitted for publication (2023).
- [2] G. Filippone and M. Galici, *On the number of small Steiner triple systems with Veblen points*, work in progress (2023).
- [3] P. T. Nagy and K. Strambach, *Schreier loops*, Czechoslovak Mathematical Journal 58.3 (2008).