Maximal partial ovoids of the generalized quadrangle Q(4,q)

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Maximal partial ovoids of $Q(4, q)$ of size $q^2 - 1$ are known only for $q = 3, 5, 7$ and 11. These examples were found by Tim Penttila. We discuss the non-existence of maximal partial ovoids of $Q(4, q)$ for q odd and non prime, where we focus on different representations of the generalized quadrangle $Q(4, q)$ and the use of Rédei polynomials. We also discuss recent results for the prime case, including a characterisation of the known examples.