Maximum partial triple systems on 16 and 17 points

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(joint work with Diane Donovan and Mike Grannell)

It is shown that, up to isomorphism, there are $35\,810\,097$ maximum partial triple systems on 17 points and $47\,744\,568$ maximal partial triple systems on 16 points. It is also established that there are $157\,151$ non-isomorphic pairwise balanced designs, PBD$(17, \{3, 5\})$s, having a single block of size 5. Structural properties of all these systems are determined, including their automorphism groups, and the numbers of Pasch configurations, mitres and Fano planes contained in them.

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Keywords: Maximum partial triple system; Steiner triple system; Pairwise balanced design; Pasch configuration; Mitre configuration.

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