

On unitals $(65, 5, 1)$

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(joint work with Vedran Krčadinac)

S. Stoicev and V. Tonchev found all unitals embedded in the known projective planes of order 16. Together with two more cyclic examples, this sums up to 40 known 2 - $(65, 5, 1)$ designs. We will report on a computer search for these designs with a prescribed automorphism group of order 50. A total of 147 nonisomorphic designs were found, most of which are new. The Kramer-Mesner method with tactical decompositions was used.

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Keywords: block design, unital, automorphism group.