

Jan Hora
Steiner forms

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Abstract: A trilinear alternating form on dimension n can be defined based on a Steiner triple system of order n . We prove some basic properties of these forms and using the radical polynomial we show that for dimensions up to 15 nonisomorphic Steiner triple systems provide nonequivalent forms over $GF(2)$. Finally, we prove that Steiner triple systems of order n with different number of subsystems of order $(n-1)/2$ yield nonequivalent forms over $GF(2)$.

Keywords: trilinear alternating form; Steiner triple system; radical polynomial

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