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Self-embeddings of doubled Steiner triple systems.

The faces in each color class of a face 2-colorable triangular embedding of the complete graph K_n form a Steiner triple system of order n , briefly STS(n); a *biembedding* of the STS(n)s S_1 and S_2 is such an embedding of K_n in which the faces form systems isomorphic to S_1 and S_2 . If, furthermore, S_1 and S_2 are isomorphic, then the biembedding is called a *self-embedding* of S_1 . Given an STS(n) S and a 1-factorization $\mathcal{F} = \{F_1, F_2, \dots, F_n\}$ of K_{n+1} , we can form an STS($2n+1$) S' by adding to S all triples of the form $\{x_i, a, b\}$, where $x_i \in S$ and $ab \in F_i$; S' is said to be a *doubling* of S . In this talk, we explore self-embeddings of doubled cyclic Steiner triple systems, doubled affine Steiner triple systems, and doubled projective Steiner triple systems. (Received September 13, 2014)