

## **Abstract**

Certain combinatorial set systems have been proposed for use in the design of deterministic key predistribution schemes for distributed sensor networks. In this paper, we analyze combinatorial properties of the set systems, that relate to the connectivity and resilience of the resulting distributed sensor networks. Motivated by these considerations, we introduce a new class of set systems, called “common intersection designs” which seem to be of intrinsic interest. We discuss existence and properties of common intersection designs in this paper.