

Let t, v, k and λ be positive integers. A $t - (v, k, \lambda)$ design is a pair (X, \mathcal{A}) where X is a set of size v and $\mathcal{A} \subseteq \binom{X}{k}$ such that every $T \in \binom{X}{t}$ is contained in exactly λ elements of \mathcal{A} . For $t = 2$, finite projective planes and affine planes over finite fields are examples. For $t = 3$, finite Mobius planes are examples. For $t = 4$ and $t = 5$ there are only finitely many examples known (with $\lambda = 1$ and $v > k$) constructed from Mathieu groups. Construction of such structures for $\lambda = 1$ are extremely difficult problems. No examples are known with parameters $t \geq 6$, $\lambda = 1$ and $v > k$. Some recently proved results will be presented. Following the tradition of late Paul Erdos the speaker is offering two prizes.

- (1) Rs. 5000 for construction of any $3 - (v, 7, 1)$ design with $v > 7$.
- (2) Rs. 10000 for construction of any $t - (v, k, 1)$ design with $t \geq 6$ and $v > k$.