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On Packing Designs

A 2-(v, k, λ) packing design, $(\mathcal{V}, \mathcal{B})$, is a set $\mathcal{V}$ (with elements called *points*) and a collection $\mathcal{B}$ of k-subsets of $\mathcal{V}$ (called *blocks*) with the property that every unordered pair of points occurs in at most λ blocks. We denote the maximum possible size of $\mathcal{B}$ by $D_\lambda(v, k, 2)$ and call it the *packing number* for these parameters. We are interested in finding either the exact value of $D_\lambda(v, k, 2)$ or a good lower bound on it.

I will give an update on the exact values of $D_\lambda(v, 5, 2)$.

I will also talk about some new results on improving the known bounds on the size of constant weight codes (packings with $\lambda = 1$) by using optimization.