
PETER DUKES, University of Victoria
Packings of 4-cliques in complete graphs

This talk considers maximum packings of edge-disjoint 4-cliques in the complete graph K_n . When $n \equiv 1, 4 \pmod{12}$, these are simply block designs. When $n \equiv 0, 3 \pmod{12}$, the so-called leave graph induced by uncovered edges is 2-regular. Colbourn and Ling settled the existence of Hamiltonian 2-regular leaves in this case. We extend their construction and use a small batch of seed examples to realize a variety of 2-regular leaves. In fact, we obtain a lower bound on n for the existence of packings with any such leave. This is joint work with Yanxun Chang and Tao Feng.