The intersection problem for maximum packings of K_{6n+5}

Amber B. Holmes, Auburn University

In 1989, Gaetano Quattrocchi gave a complete solution of the intersection problem for maximum packings of K_{6n+5} with triples when the leave (a 4–cycle) is the same in each maximum packing. Quattrocchi showed that $I[2] = 2$ and $I[n] = \{0, 1, 2, \ldots, \frac{(\binom{n}{2}-4)}{3} = x\} \backslash \{x-1, x-2, x-3, x-5\}$ for all $n \equiv 5 \pmod 6 \geq 11$. We extend this result by removing the exceptions $\{x-1, x-2, x-3, x-5\}$ when the leaves are not necessarily the same. In particular, we show that $I[n] = \{0, 1, 2, \ldots, \frac{(\binom{n}{2}-4)}{3}\}$ for all $n \equiv 5 \pmod 6$.