COMBINATORIAL PROPERTIES OF SOME MONOMIAL IDEALS INDUCED BY GRAPHS AND PERMUTATIONS

ABSTRACT

Monomial ideals provide a bridge between combinatorics and commutative algebra. In this talk we discuss some combinatorial properties of the following families monomial ideals: the 1-skeleton ideal $\mathcal{M}_G^{(1)}$ of the G-parking function ideal $\mathcal{M}_G$, monomial ideals induced by the permutation avoiding patterns 132 and 312, and the edge ideals of three families of circulant graphs

- $C_n(1, \ldots, \widehat{j}, \ldots, \lfloor \frac{n}{2} \rfloor)$,
- $C_{lm}(1, 2, \ldots, \widehat{2l}, \ldots, \widehat{3l}, \ldots, \lfloor \frac{lm}{2} \rfloor)$, and
- $C_{lm}(1, 2, \ldots, \widehat{l}, \ldots, \widehat{2l}, \ldots, \lfloor \frac{lm}{2} \rfloor)$.

The results are based on research done in collaboration with C. Kumar, G. Lather and S. Anand.