Università Politecnica delle Marche
DIISM - Dipartimento di Ingegneria Industriale
e Scienze Matematiche

AVVISO DI SEMINARIO

martedì 16 novembre 2021 – ore 17:00

Presso l'aula seminari nei locali DIISM - Quota 155

Il dott. FRANCESCO STRAZZANTI

(Università degli Studi di Torino)

terrà un seminario dal titolo

"Cohen-Macaulay binomial edge ideals"

Abstract: In the last decades the connections between Commutative Algebra and Combinatorics have been extensively explored. In this perspective, many authors have considered classes of ideals in a polynomial ring that can be naturally associated with combinatorial objects, and have studied their algebraic invariants exploiting this combinatorial connection.
In this talk we are interested in the so-called binomial edge ideals, which are ideals generated by binomials corresponding to the edges of a finite simple graph. They can be viewed as a generalization of the ideal of the maximal minors of a generic matrix with two rows, where only *some* minors are considered.
After reviewing some results about these ideals, we present a conjecture for a combinatorial characterization of Cohen-Macaulay binomial edge ideals. We identify sufficient and necessary conditions for Cohen-Macaulayness, both of which can be read off from the underlying graph. Moreover, we show that these conditions are indeed equivalent for large classes of graphs settling the conjecture in these cases.
This is joint work with Davide Bolognini and Antonio Macchia.