ALGEBRA SEMINAR

Blow-Up Algebras of Strongly Stable Ideals

By

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Abstract: Let A be a polynomial ring and I1,…, Ir be a collection of ideals in A. The multi-Rees algebra R(I1,…, Ir) of this collection of ideals encode many algebraic properties of these ideals, their products, and powers. Additionally, the multi-Rees algebra R(I1,…, Ir) arise in successive blowing up of Spec A at the subschemes defined by I1,…, Ir. Due to this connection, Rees and multi-Rees algebras are also called blow-up algebras in the literature.
In this talk, we will focus on Rees and multi-Rees algebras of strongly stable ideals. In particular, we will discuss the Koszulness of these algebras through a systematic study of these objects via three parameters: the number of ideals in the collection, the number of Borel generators of each ideal, and the degrees of Borel generators. In our study, we utilize combinatorial objects such as fiber graphs to detect Gröbner bases and Koszulness of these algebras. This talk is based on a joint work with Kuei-Nuan Lin and Gabriel Sosa.

Date: 21 October 2021
Time: 18:30 – 19:20
Place: ZOOM. To request the event link, please send a message to sezer@fen.bilkent.edu.tr