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Polynomial growth of Betti sequences over local rings

Luchezar L. Avramov

University of Nebraska at Lincoln

The asymptotic patterns of the Betti sequences of finitely generated modules over a local ring R reflect and affect the nature of its singularity. For instance, these sequences are eventually zero if and only if R is regular, and they are eventually constant if and only if R is a hypersurface section of a regular ring. The talk is about rings over which every Betti sequences is eventually given by some polynomial of degree at most c. We conjecture that these are precisely the hypersurface sections of complete intersection rings of codimension c and multiplicity 2^c. It will be shown that this condition is sufficient, and that it is also necessary if $c \leq 3$ or if R is homogeneous.
The talk is based on joint work with Alexandra Seceleanu and Zheng Yang.
