Betti Numbers of Numerical Semigroup Rings

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Minimal free resolution of a finitely generated k-algebra is an important source to extract information about the algebra. Therefore, finding an explicit minimal free resolution of a standard k-algebra is one of the main problems in commutative algebra and algebraic geometry. Even it is not always easy to obtain a description of the differential in the resolution, we can still get some information about the numerical invariants of the resolution such as Betti numbers.

A numerical semigroup is a subsemigroup of the nonnegative integers that has a finite complement. Numerical semigroups appear in various branches of mathematics ranging from singularity theory to number theory. There is a close relationship between monomial curves and numerical semigroups. This close relation allows us to use the algebraic geometry terminology in studying numerical semigroups.

In this talk, we will give brief and recent results related to the Betti numbers of numerical semigroup rings and of their tangent cones [1],[2],[3].

Keywords
Numerical Semigroup Rings, Tangent Cones, Betti Numbers, Monomial Curves

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