SEMINARIO DI GEOMETRIA E ALGEBRA

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The Lehmer complex of a Bruhat interval

Abstract. In order to investigate the shape of a lower Bruhat interval in a Coxeter group, we introduce the notion of Lehmer complex of a Bruhat interval. It is obtained by using the so-called Lehmer code, which provide a description of a lower Bruhat interval as a multicomplex. In this talk, the basic notions involved are defined and some results regarding the Poincaré polynomials of lower Bruhat intervals in the symmetric group are presented. In particular, it is established a characterization of all possible Poincaré polynomials of smooth Schubert varieties in a flag variety, by setting a correspondence between them and a well-known set of partitions. Moreover, we improve a result due to Bjorner and Frankl and a classical result due to Stanley, both concerning M-sequences. This is a joint work with Paolo Sentinelli.

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