## 1024-13-125

Juan C. Migliore\* (migliore.1@nd.edu), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556, and Uwe Nagel and Fabrizio Zanello. Codimension Four Gorenstein Hilbert functions of low initial degree. Preliminary report.

In a recent paper, Zanello found a simple new proof of Stanley's characterization of Hilbert functions of Gorenstein algebras in codimension three. We modify and extend this approach to attack the open problem of characterizing Hilbert functions of Gorenstein algebras in codimension four. Translating to *h*-vectors, the first question is whether all are unimodal. A deeper question, though, is whether in fact all are so-called SI-sequences. For low initial degree, we answer this latter question in the affirmative, which implies an affirmative answer also to the question of unimodality. This is joint work with Uwe Nagel and Fabrizio Zanello. (Received January 04, 2007)