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University of Kentucky, 715 Patterson Office Tower, Lexington, KY 40506-0027, and **Fabrizio
Zanello**. *On the degree two entry of a Gorenstein h -vector and a conjecture of Stanley.*

In general, our knowledge of the Hilbert functions of Gorenstein algebras whose codimension is at least four is rather sparse. In this talk we focus on their value in degree two. We establish a lower bound that depends on the socle degree (Castelnuovo-Mumford regularity) and the codimension. It allows us to prove a conjecture of Stanley from 1983 about the order of magnitude of the minimum Hilbert function in degree two among the Gorenstein algebras of socle degree four when the codimension increases.

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