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**Cristiano Bocci** and **Brian Harbourne\*** (bharbour@math.unl.edu), Department of Mathematics, Lincoln, NE 68588-0130. *Optimal asymptotic results for powers containing symbolic powers*. Preliminary report.

Let  $I$  be the ideal defining a finite set of points in the projective plane. It is known that  $I^{(4)} \subset I^2$ . It is an open problem whether  $I^{(3)} \subset I^2$ . More generally, it is known that  $I^{(2m)} \subset I^m$  but it is in general not known what  $\rho(I)$  is, where  $\rho(I)$  is the supremum of all ratios  $m/r$  such that  $I^r$  does not contain  $I^{(m)}$ . Here we study this problem in the case that  $I$  contains a form of degree 2, in which case we relate this problem to the problem of finding the graded Betti numbers of powers of  $I$ . (Received August 02, 2007)