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**Giulio Caviglia\*** ([caviglia@math.berkeley.edu](mailto:caviglia@math.berkeley.edu)), University of California, Berkeley, 970 Evans Hall #3840, Berkeley, CA 94720-3840. *Three theorems on Hilbert functions*. Preliminary report.

We study Hilbert functions of ideals  $I \subseteq K[x_1, \dots, x_n]$  containing a regular sequence of given degrees  $d_1, \dots, d_r$ . We describe some progress in the direction of the Lex-Plus-Power conjecture. In the case  $r = 2$  we give a generalization of theorems of Macaulay, Green and Gotzmann. (Received September 20, 2005)