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A Gimigliano and **B Harbourne*** (bharbour@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588-0130, and **M Ida**. *Toward a numerical theory for the Betti numbers of ideals of fat points*. Preliminary report.

Given multiplicities m_1, \dots, m_n of general points p_1, \dots, p_n of P^2 , there is an increasingly well-supported conjecture which, in terms of the m_i only, gives the Hilbert function of the ideal I defining the fat point subscheme $m_1p_1 + \dots + m_np_n$. No such conjecture for the Betti numbers of the minimal free resolution of I has ever been given. Using a connection between the Betti numbers and splittings of certain rank 2 bundles on P^1 , we give a conjecture for the Betti numbers in many cases. We also formulate a stable version of the problem; our conjecture, if true, would give a complete solution of the stable problem. (Received September 06, 2005)