1067-13-1765 Susan Marie Cooper* (scooper4@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588-0130, and Stephen G Hartke (hartke@math.unl.edu), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588-0130. Relating Initial Degrees of Symbolic and Regular Powers. Preliminary report.

Over many years, numerous algebraic tools have been developed to gain insight into 0-dimensional schemes. In particular, the Hilbert function and initial degree of the homogeneous ideal of the scheme have played central roles in attacking many intriguing problems. Although Hilbert functions of ideals defining reduced 0-dimensional schemes are well understood, much less is known about symbolic powers of such ideals (which define non-reduced schemes called fat point schemes). Recently, work of Harbourne and Huneke suggests a conjectural relationship between the initial degrees of symbolic and regular powers of homogeneous ideals. In this talk we will discuss this conjecture in the geometric setting with ideals of fat point schemes. A first step will involve applying bounds (described by Cooper-Harbourne-Teitler) for Hilbert functions of fat point schemes. This is joint work with S. G. Hartke. (Received September 21, 2010)