1030-13-181   **Craig Huneke** (`huneke@math.ku.edu`) and **Juan Migliore*** (`migliore.1@nd.edu`), Dept. of Math, University of Notre Dame, Notre Dame, IN 46556, and **Uwe Nagel** (`uwenagel@ms.uky.edu`) and **Bernd Ulrich** (`ulrich@math.purdue.edu`). *Minimal Homogenous Liaison and Licci Ideals.*

We study the linkage classes of homogeneous ideals in polynomial rings. An ideal is said to be homogeneously licci if it can be linked to a complete intersection using only homogeneous regular sequences at each step. We ask a natural question: if I is homogeneously licci, then can it be linked to a complete intersection by linking using regular sequences of forms of smallest possible degree at each step (we call such ideals minimally homogeneously licci)? In this paper we answer this question in the negative, with a somewhat general construction in codimension 3. This has two consequences: (a) for every $n \geq 28$ we construct a set of n points in $\mathbb{P}^3$ which are homogeneously licci but not minimally homogeneously licci, and (b) by taking suitable hypersurface sections we show that the answer is negative in arbitrary codimension ≥ 3. Moreover, we prove that one cannot distinguish between the classes of homogeneously licci and non-licci ideals based only on their Hilbert functions, nor distinguish between homogeneously licci and minimally homogeneously licci ideals based solely on the graded Betti numbers. (Received August 01, 2007)

1