Meeting: 1004, Bowling Green, Kentucky, SS 15A, Special Session on Recent Advances in Noncommutative Algebra

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Non-commutative covers of weighted projective varieties. Preliminary report.

Let S be a weighted polynomial ring with generators of positive degree, and $A = S/I$ a graded quotient ring. Let $X = \mathrm{Proj}A$ be the usual weighted projective scheme and $Y = \mathrm{Proj}_{nc}A$ the non-commutative scheme as defined by Artin and Zhang. There is a map $f : Y \to X$ in the sense of non-commutative algebraic geometry. We will discuss some of the basic properties of the map f. Often Y has better properties that X. There is an open affine cover of Y by non-commutative spaces with coordinate rings that are skew group rings $R * G$ where R is a commutative ring with $\mathrm{Spec}R^G$ an open affine piece of X and G a cyclic group. (Received January 18, 2005)