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Noncommutative quadrics and $\mathbb{Z}^2$-graded algebras

In pursuit of new examples of Artin-Schelter (AS) regular algebras, Zhang-Zhang classified certain $\mathbb{Z}^2$-graded algebras which are double Ore extensions of AS regular algebras of dimension 2 into 26 families. Following Artin-Tate-Van den Bergh, we compute the point schemes of these algebras and re-interpret the Zhang-Zhang classification using geometric data. We also show that the associated noncommutative projective schemes are noncommutative quadric surfaces in the sense of Van den Bergh. This is joint work with Daniel Chan and Paul Smith.