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(Shifted) Poisson structures from noncommutative surfaces

I will describe a canonical, nonperturbative recipe for the deformation quantization of rational/ruled surfaces, obtained by twisting a natural semi-orthogonal decomposition of the derived category by a Morita automorphism of an anticanonical curve. The moduli spaces of "sheaves" on the resulting "noncommutative surfaces" have natural Poisson structures, generalizing the classical constructions of Bottacin and Mukai (in the commutative case), Nevins–Stafford (in the case of elliptic quantum planes) and more recent works of Rains (in the case of simple sheaves). The proof of the Jacobi identity for the Poisson bracket leverages and extends recent developments in the theory of shifted symplectic/Poisson structures in derived algebraic geometry, due to Brav–Dyckerhoff, (Calaque–)Pantev–Toën–Vaquié-Vezzosi, Melani–Safronov and Toën. This talk is based on joint work with Eric Rains.