

QUANTUM CLUSTER ALGEBRAS, QUANTIZED VARIETIES, AND SKEW POLYNOMIAL RINGS

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ABSTRACT. We will introduce the concept of a quantum cluster algebra, which is a noncommutative version of classical commutative cluster algebras, and discuss some of the large families of quantized coordinate rings in which quantum cluster algebra structures appear, such as quantum matrices, quantum double Bruhat cells, and quantum flag varieties. These quantized coordinate rings have tight relationships with skew polynomial algebras, and we will describe how quantum cluster structures can be obtained via such relationships