

Nullstellensatz theorem for skew PBW extensions

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Abstract. In this talk we define the algebraic sets and the ideal of points for bijective skew PBW extensions with coefficients in left Noetherian domains. Some properties of affine algebraic sets of commutative algebraic geometry will be extended, in particular, a Zariski topology will be constructed. Assuming additionally that the extension is quasi-commutative with polynomial center and the ring of coefficients is an algebraically closed field, we will prove an adapted version of Hilbert's Nullstellensatz theorem that covers the classical one. The Gröbner bases of skew PBW extensions will be used for defining the algebraic sets and for proving the main theorem. Many key algebras and rings coming from mathematical physics and non-commutative algebraic geometry are skew PBW extensions (see **Fajardo, W., Gallego, C., Lezama, O., Reyes, A., Suárez, H., and Venegas, H.**, *Skew PBW Extensions: Ring and module theoretic properties, matrix and Gröbner methods, applications*, Algebra and Applications 28, Springer, 2020).

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