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Integer-valued polynomials and a game called p -ordering

In this talk we will visit the world of integer-valued polynomials, and also introduce the ring of polynomials that are integer-valued over a subset of \mathbb{Z} . We will explore Bhargava's "game called p -ordering", and see how p -orderings and p -sequences allow us to find a \mathbb{Z} -module basis for the ring of integer-valued polynomials for a subset of the integers. Finally, we will briefly see how Bhargava's tools may be extended to the noncommutative case of integer-valued polynomials over the ring $M_n(\mathbb{Z})$ of $n \times n$ integer matrices.