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Schur Algebras in Type B

Summary: We compare two type B generalizations of the q-Schur algebra: the cyclotomic q-Schur algebra of Dipper, James, and Mathas, and the algebra of endomorphisms commuting with the natural generalization of the Hecke action to type B, introduced by Lai and Luo. By writing the latter algebra as an idempotent truncation of the former, we leverage its properties to establish cellularity and study the crystal graph structure of the simples of the endomorphism algebra, investigating parameter values at which these algebras are Morita equivalent.