

A Hecke theoretic shadow of tensoring the crystal of the basic representation with a level 1 perfect crystal

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The irreducible representations of the symmetric group S_n are parameterized by partitions of n . There is a straightforward bijection from partitions to the Bernstein-Zelevinsky multisegments which also parameterize these modules. Furthermore, one can use the data from the partition or from the multisegment to construct the module algebraically.

Over a field of characteristic p , the irreducible representations of S_n are parameterized by the " p -regular" partitions. A geometric result of Grojnowski and Lusztig shows these same modules are parameterized by "aperiodic segments". There is a straightforward bijection from p -regular partitions to those aperiodic segments that correspond to S_n -modules.

However, the analogue to the B-Z construction of these modules using aperiodic segments fails. We give an alternate (algebraic) construction of the modules, motivated by viewing the crystal of the basic representation of \mathfrak{sl}_p as a limit of tensor products of level 1 perfect crystals.