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Vertices of simple modules for symmetric groups

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For a finite group G and a field F of characteristic $p > 0$, a vertex of an indecomposable module M over the group algebra FG is a subgroup Q of G which is minimal with respect to the condition that M is isomorphic to a direct summand of $\text{Ind}_Q^G(\text{Res}_Q^G(M))$. The vertices of M form a conjugacy class of p -subgroups of G which are closely related to the defect groups of the block B of FG containing M . It is an open problem to determine the vertices of the simple FG -modules in the case where G is a finite symmetric group S_n . In my talk I will report on recent work of S. Danz, B. Fotsing, R. Zimmermann and myself.