

## **The generating function for the non-projective part of the tensor powers of a module**

Let  $M$  be a finite dimensional  $kG$ -module for a finite group  $G$  over a field  $k$  of characteristic  $p$ . We will consider the generating function for the non-projective part of the tensor powers of  $M$  and see some interesting properties of its radius of convergence. This work appears in a recent paper of Dave Benson and Peter Symonds. We will further analyze this generating function in the case of a class of permutation modules of the symmetric group and present a combinatorial formula to determine the radius of convergence of this power series. This radius of convergence helps in determining the projective proportion of the module in the limit.