Journal of Lie Theory 23 (2013) 691–697

Y. Yoshii
National College of Technology, 22 Yata, Yamatokoriyama, Nara, Japan 639-1080
yyoshii@libe.nara-k.ac.jp

A Remark on Pillen's Theorem for Projective Indecomposable $kG(n)$-Modules

Let g be a connected, semisimple and simply connected algebraic group defined and split over the finite field of order p, and let $g(n)$ be the corresponding finite chevalley group and g_n the n-th frobenius kernel. Pillen has proved that for a $3(h-1)$-deep and p^n-restricted weight λ, the G-module $Q_n(\lambda)$ which is extended from the G_n-PIM for λ has the same socle series as the corresponding $kG(n)$-PIM $U_n(\lambda)$. Here we remark that this fact already holds for λ being $2(h-1)$-deep.

Keywords: Loewy series, projective indecomposable modules, 2(h-1)-deep weights

MSC: 20C33, 20G05, 20G15