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Some torsion classes in the Chow ring and cohomology of $BPGL_n$. (English) Zbl 07355428

Summary: In the integral cohomology ring of the classifying space of the projective linear group $PGL_n$ (over $\mathbb{C}$), we find a collection of $p$-torsion classes $y_{p,k}$ of degree $2(p^{k+1} + 1)$ for any odd prime divisor $p$ of $n$, and $k \geq 0$. If, in addition, $p^2 \nmid n$, there are $p$-torsion classes $\rho_{p,k}$ of degree $p^{k+1} + 1$ in the Chow ring of the classifying stack of $PGL_n$, such that the cycle class map takes $\rho_{p,k}$ to $y_{p,k}$. We present an application of the above classes regarding Chern subrings.

MSC:
14C15 (Equivariant) Chow groups and rings; motives
55R35 Classifying spaces of groups and $H$-spaces in algebraic topology
14L30 Group actions on varieties or schemes (quotients)
55R40 Homology of classifying spaces and characteristic classes in algebraic topology
55T10 Serre spectral sequences

Full Text: DOI