On the Homology of $GL_n$ and Higher Pre-Bloch Groups

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Abstract. For every integer $n > 1$ and infinite field $F$ we construct a spectral sequence converging to the homology of $GL_n(F)$ relative to the group of monomial matrices $GM_n(F)$. Some entries in $E^2$-terms of these spectral sequences may be interpreted as a natural generalization of the Bloch group to higher dimensions. These groups may be characterized as homology of $GL_n$ relatively to $GL_{n-1}$ and $GM_n$. We apply the machinery developed to the investigation of stabilization maps in homology of General Linear Groups.