

Projective homogeneous varieties of Picard rank one in small characteristic

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Abstract. We extend to the cases of characteristic 2 and 3 the classification of projective homogeneous varieties of Picard group $\mathbf{Z}$, corresponding to parabolic subgroups with maximal reduced subgroup. In all types, except for G_2 in characteristic 2, the latter are all obtained as a product of a maximal reduced parabolic subgroup with the kernel of a purely inseparable isogeny. For the G_2 case, we exhibit an explicit counterexample and show it is the only one, thus completing the classification. We then construct new examples of projective homogeneous varieties of Picard rank two.

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