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On the Principal Bundles over a Flag Manifold: II

[Part I of this article has been published in J. Lie Theory 14 (2004) 569–581.] Let G be a connected semisimple linear algebraic group defined over an algebraically closed field k and $P \subset G$, $P \neq G$, a reduced parabolic subgroup that does not contain any simple factor of G. Let $\rho : P \longrightarrow H$ be a homomorphism, where H is a connected reductive linear algebraic group defined over k, with the property that the image $\rho(P)$ is not contained in any proper parabolic subgroup of H. We prove that the principal H-bundle $G \times^P H$ over G/P constructed using ρ is stable with respect to any polarization on G/P. When the characteristic of k is positive, the principal H-bundle $G \times^P H$ is shown to be strongly stable with respect to any polarization on G/P.

Keywords: Homogeneous space, principal bundle, Frobenius, stability.

MSC: 14M15, 14F05