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Hassan Azad, Indranil Biswas

On the Principal Bundles over a Flag Manifold

Let P be a parabolic subgroup of a semisimple simply connected linear algebraic group G over \mathbb{C} and ρ an irreducible homomorphism from P to a complex reductive group H. We show that the associated principal H-bundle over G/P, associated for ρ to the principal P-bundle defined by the quotient map $G \longrightarrow G/P$, is stable. We describe the Harder–Narasimhan reduction of the G-bundle over G/P obtained using the composition $P \longrightarrow L(P) \longrightarrow G$, where L(P) is the Levi factor of P.