Direct image of parabolic line bundles

Auffarth, Robert

Biswas, Indranil

© 2017 Elsevier B.V. Given a vector bundle E, on an irreducible projective variety X, we give a necessary and sufficient criterion for E to be a direct image of a line bundle under a surjective étale morphism. The criterion in question is the existence of a Cartan subalgebra bundle of the endomorphism bundle End(E). As a corollary, a criterion is obtained for E to be the direct image of the structure sheaf under an étale morphism. The direct image of a parabolic line bundle under any ramified covering map has a natural parabolic structure. Given a parabolic vector bundle, we give a similar criterion for it to be the direct image of a parabolic line bundle under a ramified covering map.