Abstract of the Dissertation "Motives of Reductive Groups"

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Let G be a Lie group, that is a group object in the category of smooth manifolds. The singular cohomology ring with rational coefficients of G is, by a result of Hopf, an alternating algebra on finitely many odd degree generators. The aim of the dissertation is to state and to prove a motivic version of Hopf's result. We work in the triangulated category of geometric motives constructed by Voevodsky. The group objects to be considered are split reductive groups over a perfect base field. This class contains the variety associated to most of the classical groups such as the general linear groups. The main theorem of the dissertation states that the geometric motive with rational coefficients of a split reductive group is a symmetric algebra on generators of odd degree. Applying any cohomology theory on this result gives an alternating algebra on finitely many odd degree generators.