

PRINCIPAL BUNDLES WITH FIBRE A CLASSIFYING SPACE

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In this talk we will work mostly within the holomorphic and smooth categories. We are going to discuss smooth and holomorphic $B\mathbb{C}^\times$ -bundles and more generally, BH -bundles, for an abelian group H . We are going to associate with these a sheaf of categories on the base space. In the case when H appears in a central extension

$$0 \longrightarrow H \longrightarrow G \longrightarrow K \longrightarrow 1$$

we will relate this sheaf of categories to the obstruction of lifting a principal (holomorphic or smooth) K -bundle to a (holomorphic or smooth) G -bundle.