

## DERIVED AZUMAYA ALGEBRAS AND TWISTED K-THEORY

Topological  $K$ -theory of dg-categories is a localizing invariant of dg-categories over  $\mathbb{C}$  taking values in the  $\infty$ -category of  $KU$ -modules. In this talk I describe a relative version of this construction; namely for  $X$  a quasi-compact, quasi-separated  $\mathbb{C}$ -scheme I construct a functor valued in  $Shv_{Sp}(X(\mathbb{C}))$ , the  $\infty$ -category of sheaves of spectra on  $X(\mathbb{C})$ . For inputs of the form  $\text{Perf}(X, A)$  where  $A$  is an Azumaya algebra over  $X$ , I characterize the values of this functor in terms of the twisted topological  $K$ -theory of  $X(\mathbb{C})$ . From this I deduce a certain decomposition, for  $X$  a finite CW-complex equipped with a bundle of projective spaces  $\pi : P \rightarrow X$ , of  $KU(P)$  in terms of the twisted topological  $K$ -theory of  $X$ ; this is a topological analogue of a result of Quillen's on the algebraic  $K$ -theory of Severi-Brauer schemes.