HIGHER TWISTINGS FOR K-THEORY

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It is known that for a compact space X, twistings of K-theory over X are classified by $[X, BK_\otimes]$. Here $K_\otimes \simeq \mathbb{Z}/2 \times K(\mathbb{Z}, 2) \times BSU_\otimes$ is the space of units of K with H-space structure induced by the tensor product of vector bundles. The twistings corresponding to the factor $[X, BBSU_\otimes]$ are called higher twistings. In the talk I will give a definition for the most general twistings of K-theory. This has been worked out rigorously in the literature only for the lower twistings and only sketched for the general situation.

I will also discuss the equivariant setting limited to the case over a point. I will show that if G is a compact Lie group, then there are no higher twistings for completed twisted G-equivariant K-theory over a point. In contrast, one can see that this is not the case for topological groups in general.