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Kamran Reihani* (reihani@math.ku.edu), 405 Snow Hall, Lawrence, KS 66045-7594. *Bundles carrying invariant structures for dynamical systems and their operator algebras*. Preliminary report.

Let X be a space in a certain category (e.g. measure space, topological space, metric space, smooth manifold, Riemannian manifold, etc.), and let Γ be group of automorphisms of the dynamical system (X, Γ) in the appropriate sense. In general, there is no guarantee for existence of a “compatible” Γ -invariant structure (e.g. measure, metric, differential form, Riemannian metric, etc.) on X . On the other hand, studying invariants of the orbit space or the crossed product algebra usually requires existence of such invariant structures. Following the philosophy of “reduction to type-II”, one can circumvent the obstruction by passing to a “natural” extension (Y, Γ) of the original system, which will carry a Γ -invariant structure. The space Y is usually obtained by a bundle construction, which in simple cases is given by a skew or Cartesian product. We will discuss a few examples of such constructions. In measure category, this problem is naturally related to the modular theory of von Neumann algebras.

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