ALI HAMAD, University of Ottawa

Bundles of metric structures as left ultrafunctors

The ultraproduct construction play a fundamental role in both classic and continuous first-order logic. Categorical treatment of that construction can be done in the framework of ultracategories first introduced by Makkai and then by Lurie, where it was used in classic model theoretic and topos theoretic settings. We have used this new framework to study categories of models of continuous logic, and showed a result related to bundle theory. A certain class of functors from a compact Hausdorff space to the category of models of a continuous theory is equivalent to a nice enough notion of bundles of models of this theory, with the compact Hausdorff space being the base space. This notion allows for the recovery of familiar notions of bundles like Banach bundles and continuous fields of C^* algebras.