Chu-spaces and representations

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For every Hausdorff topological group G an algebra LG can be defined in the category of separated extensional Chu-spaces over the autonomous category of Banach spaces and contracting linear maps. The Chu-algebra LG is a group algebra in the sense that there is a bijection between weakly continuous isometric representations and LG-Chu-modules, more precisely a canonical equivalence of categories. For every subgroup H of G, the restriction to LH of the multiplication on LG equips the group algebra LG with a right LH-Chu-module structure. Given a left LH-Chu-module, an induced LG-Chu-module can be constructed.

Note that the construction of the group algebra LG is done on general Hausdorff topological groups. In particular we do not suppose the existence of a Haar measure as in the classic case and there are no measure-theoretic arguments.