



Banach J. Math. Anal. 3 (2009), no. 2, 16–27

BANACH JOURNAL OF MATHEMATICAL ANALYSIS

ISSN: 1735-8787 (electronic)

<http://www.math-analysis.org>

E_0 -SEMIGROUPS FOR CONTINUOUS PRODUCT SYSTEMS: THE NONUNITAL CASE

MICHAEL SKEIDE

Communicated by M. Frank

ABSTRACT. Let \mathcal{B} be a σ -unital C^* -algebra. We show that every strongly continuous E_0 -semigroup on the algebra of adjointable operators on a full Hilbert \mathcal{B} -module E gives rise to a full continuous product system of correspondences over \mathcal{B} . We show that every full continuous product system of correspondences over \mathcal{B} arises in that way. If the product system is countably generated, then E can be chosen countably generated, and if E is countably generated, then so is the product system. We show that under these countability hypotheses there is a one-to-one correspondence between E_0 -semigroups up to stable cocycle conjugacy and continuous product systems up to isomorphism. This generalizes the results for unital \mathcal{B} to the σ -unital case.

UNIVERSITÀ DEGLI STUDI DEL MOLISE, DIPARTIMENTO S.E.G.E S., VIA DE SANCTIS,
86100 CAMPOBASSO, ITALY.

E-mail address: skeide@unimol.it

Date: Received: 13 January 2009; Accepted: 7 April 2009.

2000 Mathematics Subject Classification. Primary 46L55; Secondary 46L53, 46L08.

Key words and phrases. Quantum probability, quantum dynamic, product system, Hilbert module, classification.