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On C^*-algebras associated to product systems

Many examples of product systems arise from actions of semigroups by endomorphisms of a C^*-algebra. In this talk, assuming that P is a unital subsemigroup of a group G, we will define the covariance algebra of a product system $\mathcal{E} = (\mathcal{E}_p)_{p\in P}$ over a C^*-algebra A, which is constructed out of a gauge-invariant ideal of the Toeplitz algebra of $\mathcal{E}$. The covariance algebra, denoted by $A\times_{\mathcal{E}} P$, does not depend on the group G. We will discuss further properties of a covariance algebra: under the appropriate assumptions, a representation of $A\times_{\mathcal{E}} P$ in a C^*-algebra is injective if and only if it is injective on A. In particular, this may be viewed as a generalization of a Cuntz-Pimsner algebra of a single correspondence. We will also see examples of C^*-algebras in the setting of irreversible C^*-dynamical systems that can be described as a covariance algebra of a product system.