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Cuntz's $ax + b$-semigroup C^*-algebra over $\mathbb{N}$ and product system C^*-algebras

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Abstract. We investigate C^*-algebras associated with row-finite topological higher-rank graphs with no source, which are based on product system C^*-algebras. We prove the Cuntz–Krieger uniqueness theorem, and provide the condition of simplicity and purely infiniteness of our algebras. We give examples of non-discrete topological higher-rank graphs whose C^*-algebras contain Cuntz's $ax + b$-semigroup C^*-algebra over $\mathbb{N}$.

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