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On The Products of Two Odometers

Xin Li introduced the notion of the full semigroup C^*-algebra associated to each left cancellative semigroup. Later, Brownlowe-Ramagge-Robertson-Whittaker defined a quotient C^*-algebra of the full semigroup C^*-algebra, which is called the boundary quotient C^*-algebra. On the other hand, the odometer (or the adding machine) is a very important example of self-similar actions. The semigroups of products of 2 odometers, constructed by Brownlowe-Ramagge-Robertson-Whittaker, are generalizations of odometers in certain aspect. However, the boundary quotient C^*-algebra of a product of 2 odometers were not well understood. In this talk I will firstly write down the explicit relations of the generators for the boundary quotient C^*-algebra of a product of 2 odometers. Then for any product of 2 odometers I will construct a regular topological 2-graph associated to it, such that the boundary quotient C^*-algebra of the product of 2 odometers is isomorphic to the topological 2-graph C^*-algebra. This identification allows us to provide conditions under which the boundary quotient C^*-algebra of the product of 2 odometers is nuclear, simple, and purely infinite. This is joint work with Dilian Yang.