ABSTRACT

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Symmetric states for C^*-Fermi systems

After introducing the infinite Fermi C^*-tensor product of a single $_2$-graded C^*-algebra as an inductive limit, we systematically study the structure of the so-called *symmetric states***, that is those which are invariant under the group consisting of all finite permutations of a countable set. Among the obtained results, we mention the extension of De Finetti theorem which asserts that a symmetric state is a "mixture" of product states, each of which is a product of a single even state. This result induces a canonical morphism of the simplexes made of the symmetric even states on the usual infinite C^*-tensor product and the symmetric states on the infinite Fermi C^*-tensor product. We then extend the so-called** *Klein transformation* **to the infinite Fermi C^*-tensor product, available when the parity automorphism is inner. In such a situation, we investigate further properties of product states, the last being the extremal symmetric states on such an infinite Fermi C^*-tensor product C^*-algebra. The present paper is complemented with a finite dimensional illustrative example for which the Klein transformation is not implementable, and then the Fermi tensor product does not generate a usual tensor product. Therefore, in general, the study of the symmetric states on the Fermi algebra cannot be easily reduced to that of the corresponding symmetric states on the usual infinite tensor product, even if both share many common properties. The present talk is base on [1]**:

[1] Fidaleo, F.: Symmetric states for C^*-Fermi systems, Reviews in Mathematical Physics (Accepted Papers) DOI: 10.1142/S0129055X22500301