

## Free Wreath Products as Fundamental Graph $C^*$ -algebras

*jeudi 1 décembre 2022 16:45 (45 minutes)*

The free wreath product of a compact quantum group by the quantum permutation group  $S+N$  has been introduced by Bichon in order to give a quantum counterpart of the classical wreath product. The representation theory of such groups is well-known, but some results about their operator algebras were still open, for example, the Haagerup property, K-amenability, or factoriality of the von Neumann algebra. I will present a joint work with Pierre Fima in which we identify these algebras with the fundamental  $C^*$ -algebras of certain graphs of  $C^*$ -algebras, and we deduce these properties from these constructions

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