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COMBINATORICS OF CUNTZ ALGEBRAS

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$C*$-algebras are fundamental objects in the mathematical descriptions of quantum mechanics and field theory. Cuntz algebras are a family of C*-algebras first defined in [Comm. Math. Phys., 57(1977), 173–185]. In this talk, I will survey the main combinatorial concepts and results arising from, and related to, these algebras. In particular, I will define certain permutations and review the state of the art on their characterization, enumeration, and construction. I will also explain how these results can be applied to the construction of subgroups of the automorphism, and outer automorphism, groups of these algebras. I will conclude with some open problems and directions for further research.