

# Shuffle algebras & operator-valued free non-commutative probability theory

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## **Abstract**

In this talk we will explain the basics of operator-valued free non-commutative probability theory. Then, using operads and 2-monoidal categories, we will extend the shuffle algebras approach to free, boolean and monotone moment-cumulant relations to the operator-valued setting. I will end this talk with loose ends on the possible use of shuffle algebras for free multiplicative operator-valued convolution.