TOPOLOGY SEMINAR

Extremal Simplicial Distributions on Glued Measurement Spaces

By

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Abstract: Simplicial distributions form the Kleisli category of the distribution monad on simplicial sets. They were introduced as a framework for studying non-signaling polytopes and contextuality arising from measurements in quantum physics, with applications in quantum information theory. The domain of a simplicial distribution is a simplicial set that encodes the compatible measurements in a given scenario and is called the measurement space.

In this talk, we characterize extremal simplicial distributions when the measurement space is a colimit of a diagram of simplicial sets. We apply this result to cases in which identical spaces are glued together along a common subspace. In particular, we obtain a characterization of extremal simplicial distributions on what we call the rose and dipole graphs. Finally, we show how this characterization can be used to detect extremal simplicial distributions on one-dimensional measurement spaces.

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