

Abstract Submitted
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Tensor products and teleportation protocols for abstract state spaces ALEXANDER WILCE, Susquehanna University — In a well-known generalization of classical probability theory, arbitrary compact convex sets serve as abstract “state spaces” for (hypothetical) physical systems, with classical systems corresponding to simplices and quantum systems, to state spaces of C^* -algebras. One can define natural tensor products for abstract state spaces, modeling composite systems subject to a no-signaling condition. Remarkably, many basic quantum-information theoretic phenomena, including the no-cloning and no-broadcasting theorems, already appear at this level of generality. However, the existence of a teleportation protocol is a strong constraint, moving us closer to quantum theory. In this talk, after a brief summary of the framework, I will outline what we currently understand about teleportation in this setting. This represents recent and ongoing joint work with Howard Barnum, Jonathan Barrett and Matthew Leifer

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