

Title: Arguments for the Emergence of Spacetime Topology

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Abstract: It is widely held that string theory shows that spacetime geometry and topology are emergent rather than fundamental. Often it is said that this follows from the various interesting dualities that exist within string theory. I will discuss the argument from duality, contrasting it with older arguments for the non-objectivity of spatiotemporal topology. I hope that this will clarify some questions about the role of spacetime in string theory---and about the differences between the ways that philosophers and physicists approach these questions.



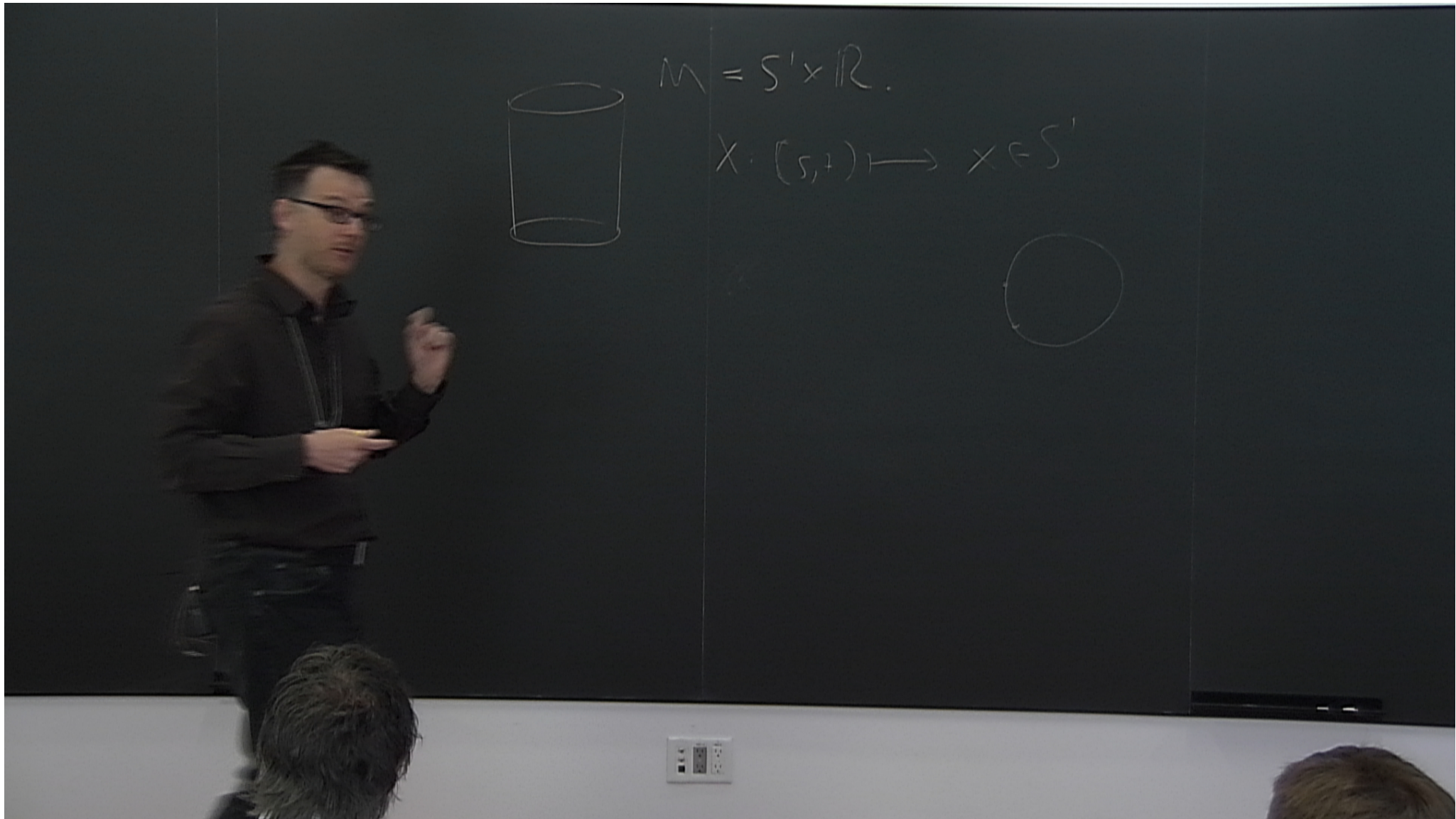
$$M = S^1 \times \mathbb{R}.$$



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$$X: (s, t) \mapsto x \in S^1$$





$\frac{1}{2}$



$$M = S^1 \times \mathbb{R}$$

$$X: [s, +) \mapsto X \in S^1$$



