

## ASTROPHYSICS SEMINAR SERIES

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Tuesday, December 3 12:30 pm - Rm 184 NSH

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### **Wormholes in Quantum Gravity**

Wormholes, or “spacetime bridges,” have been theorized since the 1930s. While General Relativity allows for them to exist, we don't see any clear avenues toward producing them. Why is this, what does it physically mean, and what really are wormholes anyway? The foundational ideas of GR are introduced and explained so that wormholes can be discussed both qualitatively and quantitatively. Euclidean spacetime is introduced and contextualized to further analyze metric solutions corresponding both to wormholes and nucleation of baby universes. Finally, the author's recent research on Euclidean wormholes at KU Leuven's Institute for Theoretical Physics is discussed and summarized. Future avenues for research in the field are discussed.



PHYSICS