

The University at Buffalo Department of Physics presents

## 26th Moti Lal Rustgi Memorial Lecture

# The Many Worlds of Quantum Mechanics

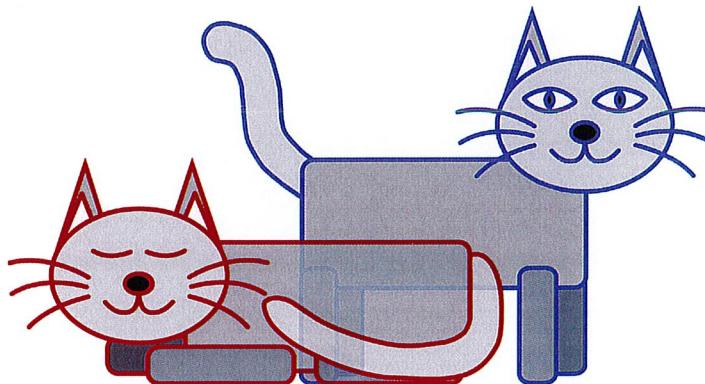
**Friday October 1, 2021 | 5:15 pm**

**NSC 215, UB North Campus**

This lecture is free and open to the public.

### Abstract

One of the great intellectual achievements of the twentieth century was the theory of quantum mechanics, according to which observational results can only be predicted probabilistically rather than with certainty. Yet, after decades in which the theory has been successfully used on an everyday basis, most physicists would agree that we still don't truly understand what it means. I will talk about the source of this puzzlement, and explain why an increasing number of physicists are led to an apparently astonishing conclusion: that the world we experience is constantly branching into different versions, representing the different possible outcomes of quantum measurements. This could have important consequences for quantum gravity and the emergence of spacetime.



## Sean M. Carroll

Research Professor  
of Physics

California Institute of  
Technology

### Bio

Sean Carroll is a Research Professor of theoretical physics at the California Institute of Technology, and Fractal Faculty at the Santa Fe Institute. He received his Ph.D. in 1993 from Harvard University. His research focuses on foundational questions in quantum mechanics, spacetime, cosmology, emergence, entropy, and complexity, occasionally touching on issues of dark matter, dark energy, symmetry, and the origin of the universe. Carroll is the author of *Something Deeply Hidden*, *The Big Picture*, *The Particle at the End of the Universe*, *From Eternity to Here*, and *Spacetime and Geometry: An Introduction to General Relativity*. He has been awarded prizes and fellowships by the National Science Foundation, NASA, the Sloan Foundation, the Packard Foundation, the American Physical Society, the American Institute of Physics, the American Association for the Advancement of Science, the Freedom From Religion Foundation, the Royal Society of London, and the Guggenheim Foundation. Carroll has appeared on TV shows such as *The Colbert Report*, PBS's *NOVA*, and *Through the Wormhole with Morgan Freeman*, and frequently serves as a science consultant for film and television. He is host of the weekly *Mindscape* podcast. He lives in Los Angeles with his wife, writer Jennifer Ouellette.

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