UNIVERSITY OF MIAMI – DEPARTMENT OF PHYSICS

# PUBLIC LECTURE

November 11, 2026

| DATE | TIME | LOCATION |
|---|---|---|
| Wednesday, November 11, 2026 | 6:00 PM | Wilder Auditorium<br>James L. Knight Physics Building, Room 112 |

# THE ACCELERATING EXPANDING UNIVERSE:

## *Dark Matter, Dark Energy, and Einstein's Cosmological Constant*

**Weather permitting, the UM Astronomy Club will host an observing session immediately following the lecture.**


**ABSTRACT**

Dark energy is the leading candidate for the mechanism that is responsible for causing the cosmological expansion to accelerate. Bharat Ratra will describe the astronomical data which persuade cosmologists that (as yet undetected) dark energy and dark matter are by far the main components of the energy budget of the universe at the present time. He will review how these observations have led to the development of a quantitative "standard" model of cosmology that describes the evolution of the universe from an early epoch of inflation to the complex hierarchy of structure seen today. In this non-technical talk, he will also discuss the basic physics, and the history of ideas, on which this model is based.


## SPEAKER




### Prof. Bharat Ratra, Ph.D.

Kansas State University • Department of Physics


Professor Bharat Ratra, distinguished professor of physics, works in the areas of cosmology and astroparticle physics. He researches the structure and evolution of the universe. Two of his current principal interests are developing models for the large-scale matter and radiation distributions in the universe and testing these models by comparing predictions to observational data. In 1988, Ratra and Jim Peebles proposed the first dynamical dark energy model. Dark energy is the leading candidate for the mechanism that is responsible for causing cosmological expansion to accelerate. The discovery that cosmological expansion is accelerating is one of the most significant scientific discoveries of the last quarter of a century. Ratra joined Kansas State University in 1996 as an assistant professor of physics. He was a postdoctoral fellow at Princeton University, the California Institute of Technology and the Massachusetts Institute of Technology. Ratra earned a doctorate in physics from Stanford University and a master's degree from the Indian Institute of Technology in New Delhi.