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APS Public Lecture: “Einstein’s Biggest Blunder: A Cosmological Mystery”

Physicist and best-selling author Lawrence Krauss discusses Einstein’s famous ‘blunder’ and the insight it now provides into ‘dark energy’ and the expansion of the universe

College Park, MD, April 4, 2005 -- Renowned theoretical physicist and popular science writer Dr. Lawrence Krauss will present a free public lecture entitled “Einstein’s Biggest Blunder: A Cosmic Mystery” at the April Meeting of the American Physical Society in Tampa, Florida (Marriott Waterside, Grand Salon C, April 18, 7:30 PM). The lecture is part of the World Year of Physics 2005 commemoration of Albert Einstein’s contributions to physics.

“Einstein’s Biggest Blunder” refers to a famous comment Einstein made about his idea of a ‘cosmological constant’. The cosmological constant was a number he included in his equations that explained how the stars could remain fixed in space despite the attraction of gravity. He abandoned the concept, and expressed his embarrassment at having included the number, once scientists developed the Big Bang model of an expanding universe.

Today, following a startling pair of discoveries in 1998 indicating the universe is actually speeding up (not slowing down) in its expansion, Einstein’s idea is viewed as anything but a blunder. Cosmologists, who study the origins and structure of the universe, resurrected Einstein’s idea in the form of a mysterious ‘dark energy’ suffusing the universe.

“There is a great deal of confusion with dark energy,” said Krauss, who is the chair of the physics department at Case Western Reserve University and also the author of six books popularizing physics and astronomy for general audiences, including his best-seller ‘The Physics of Star Trek.’ “The aim of the lecture is to clear up some confusion by relating how everything ties in together from quantum mechanics to dark energy.”

Quantum mechanics describes the behavior of matter and energy at the tiniest of scales, while dark energy operates on the largest of scales. It can be thought of as an “anti-gravitational” force field that fills the universe and becomes more powerful as space expands and galaxy clusters recede from each other, causing the expansion to speed up.

“This is a very public lecture meant for anyone who has a general interest in the recent revolutions in our understanding of the universe,” Krauss said. “I want to bring these discoveries home to them, to excite them, to make people’s head spin, and to relate this to Einstein, since this is the year we are celebrating him and what he discovered.”

Although Krauss said he got into popular science writing by chance when he was at Harvard University and wrote an article for Scientific American, he nevertheless “always had a desire to communicate” his research to non-scientists.

Krauss cites his own childhood inspiration that came from other scientists who popularized their works. This is why, despite a busy career as a scientist, professor, and department chair, he has always made time to talk to the public, especially young people.

“One of the reasons I got involved in science is because I was inspired by the popular works of scientists such as George Gamow and others,” Krauss said. “I feel I have a responsibility to return the favor. Everything I’ve done is to try to connect physics to our culture more intimately.”

He said books such as “The Physics of Star Trek” and its discussion of a hypothetical faster-than-light warp drive were hooks designed to talk to the public by comparing the Star Trek universe to the real universe.

An upcoming sixth book, entitled “Hiding in the Mirror,” deals with what he calls the “mysterious allure of extra dimensions” and how such ideas are influencing areas outside of science, such as art and literature.

“Reaching out and educating the public on this is important because I think we are on the brink of very important discoveries in the upcoming years concerning the nature of the universe,” said Krauss. “We live in a crazy universe and the most exciting thing is we don’t understand it yet.”

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For more information visit the April APS Meeting website
www.aps.org/meet/APR05/

About the World Year of Physics:

The [World Year of Physics](#) is an international celebration of physics, timed to coincide with the 100th anniversary of Albert Einstein's "miraculous year." In 1905, Einstein revolutionized much of science with three groundbreaking advances: he proved the existence of the atoms and molecules, he validated the emerging field of quantum mechanics, and he developed the theory of special relativity - which led to the most famous equation ever written, $E=mc^2$.

The United Nations has officially declared 2005 the International Year of Physics, and more than thirty nations are participating in the yearlong celebrations with public lectures, museum exhibits, and educational projects.