KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

The Seventy-Sixth KITP Public Lecture

Sponsored by Friends of KITP

Cumrun Vafa

The String Landscape, the Swampland, and Our Universe

Over the last few decades, string theory has emerged as a consistent, unified quantum theory of all the particles and forces. This development has led to a sharper understanding of the geometry of space and time as well as the basic physical laws that govern that geometry. String theory has also resulted in surprising predictions about our universe.

Solutions to string theory involve spaces with special mathematical properties. The study of these spaces has led to a 'landscape' of potentially consistent universes. The work has also led to the unexpected result that some consistent-looking universes cannot possibly exist and belong to the 'swampland.' In this talk, Cumrun Vafa reviews some of the predictions to which this picture leads, both for the fundamental constituents of our universe as well as the ultimate fate of the cosmos.

About the Speaker

Cumrun Vafa is the Hollis Professor of Mathematicks and Natural Philosophy at Harvard University. Born in Iran in 1960, he moved to the United States in 1977 to receive his B.S. in Mathematics and Physics from MIT before earning a Ph.D. in theoretical physics from Princeton University.

Professor Vafa is world-renowned for his groundbreaking work in string theory and the mathematical technology needed to explore the field. He is one of the founders of the duality revolution in string theory, and has uncovered mysteries of black holes using its topological aspects. He is also the founder of `F-theory,' which is one of the most promising directions in connecting string theory solutions, known as the `string landscape,' to particle physics. This active area of research impacts cosmology as well as particle phenomenology.

Professor Vafa has received numerous prizes and recognitions for his work in theoretical physics including the 2017 Breakthrough Prize in Fundamental Physics and the 2008 Dirac Medal of ICTP. He is a member of the National Academy of Sciences as well as the American Academy of Arts and Sciences.

Wednesday, February 26, 2020

7:00 PM (reserved seats held until 6:50 PM)

Kavli Institute for Theoretical Physics, Main Seminar Room

Admission is Free

RSVP for Reserved Seating by FRIDAY, February 21st at:

http://www.kitp.ucsb.edu/public-lecture-rsvp

or call

(805) 893-6350

Reserved seats are held until 6:50 PM

To make special arrangements to accommodate a disability, call the

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The KITP gratefully acknowledges its many friends in the community.

KITP PUBLIC LECTURE SERIES