

KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

The Sixty-Sixth KITP Public Lecture

Sponsored by Friends of KITP

Saul Teukolsky

Black Holes & Gravitational Waves

— Was Einstein Right?

One hundred and two years ago, Einstein published the General Theory of Relativity. Among its predictions were two — black holes and gravitational waves — which were so unusual that Einstein himself struggled with them. Despite much circumstantial evidence gathered by astronomers, these bizarre deviations from Newton's theory of gravity had no firm experimental confirmation...

Then, last year, the LIGO experiment announced the direct detection of gravitational waves from a pair of orbiting black holes. This is one of the most exciting scientific discoveries of the past fifty years. What are gravitational waves and how were they detected? How have supercomputers been used to establish that the waves did, in fact, come from black holes? And how does this experiment confirm that space and time are distorted by strong gravity, just as Einstein predicted?

About the Speaker

SAUL TEUKOLSKY is the Hans A. Bethe Professor of Physics and Astrophysics at Cornell University and the Robinson Professor of Theoretical Astrophysics at Caltech. Among his many honors, he is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. A native of South Africa, he first became fascinated by Einstein when he was in high school, and wanted to understand what all the fuss was about. The many popular books on relativity he read really didn't do it for him, so he resorted to reading textbooks on his own. He finally understood what relativity was about as a graduate student of Kip Thorne at Caltech. But by then he was ill-equipped to do much of anything else, so he had to become a researcher in the field. He soon discovered that many problems he wanted to solve could *not* be solved by traditional pencil-and-paper mathematics, so he needed to learn about supercomputers to tackle these problems. One consequence of this was that he ended up co-authoring a book on the subject of computation, *Numerical Recipes: The Art of Scientific Computing* — a bestseller, which has been widely read and used in classrooms the world over.

Monday, May 15, 2017

8:00 PM (reserved seats held until 7:50 PM)



Admission is Free

RSVP by May 12, 2017

at:

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

or call

(805) 893-6324

*There will be open seating,
but a reservation is required*

Note special location

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many friends in the community.*

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