

### **sean carroll general relativity pdf**

Sean Michael Carroll (born October 5, 1966) is a cosmologist and physics professor specializing in dark energy and general relativity. He is a research professor in the Department of Physics at the California Institute of Technology. He has been a contributor to the physics blog Cosmic Variance, and has published in scientific journals such as Nature as well as other publications, including The ...

### **Sean M. Carroll - Wikipedia**

arXiv:gr-qc/9712019v1 3 Dec 1997 Lecture Notes on General Relativity Sean M. Carroll Institute for Theoretical Physics University of California Santa Barbara, CA 93106

### **Lecture Notes on General Relativity - arXiv**

General relativity (GR, also known as the general theory of relativity or GTR) is the geometric theory of gravitation published by Albert Einstein in 1915 and the current description of gravitation in modern physics. General relativity generalizes special relativity and Newton's law of universal gravitation, providing a unified description of gravity as a geometric property of space and time ...

### **General relativity - Wikipedia**

The aim of these lecture notes is to provide a reasonably self-contained introduction to General Relativity, including a variety of applications of the theory, ranging from the solar system to gravitational waves, black holes and cosmology.

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I've got a degree in psychology, although I studied physics for a year and a term, and I considered post grad study in the philosophy of science (which psychology, being somewhat uncertain about ...

### **A Universe from Nothing? - Cosmic Variance**

I had the pleasure earlier this month of giving a plenary lecture at a meeting of the American Astronomical Society. Unfortunately, as far as I know they don't record the lectures on video. So here, at least, are the slides I showed during my talk. I've been a little hesitant to put them up ...

### **What Happened at the Big Bang? | Sean Carroll**

This elementary introduction pays special attention to aspects of tensor calculus and relativity that students tend to find most difficult. Its use of relatively unsophisticated mathematics in the early chapters allows readers to develop their confidence within the framework of Cartesian coordinates before undertaking the theory of tensors in curved spaces and its application to general ...

### **Introduction to Tensor Calculus, Relativity and Cosmology**

Vol. XV Le Temps, 2010 Time and Relativity 3 has been commonly held by human beings (nor do I know whether other animals share it). Among the ancient Greeks, it seems that, with the important exception

### **Time and Relativity - Bourbaphy**

Curriculum Vitae. LISA RANDALL . Harvard University Department of Physics. 17 Oxford Street, Cambridge, MA 02138, USA. randall@physics.harvard.edu (617) 496-8188. Awards and Memberships | External Advisory Positions | Editorial Positions | Named Physics Lectures | Recent and Highly Cited Papers | Books | Contributed Chapters | Contributed Articles and Blog Posts | Opera: CD Recording | Opera ...

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Carroll found that process hidden inside one of the strangest and most exciting recent elaborations of the Big Bang theory. In 1984, MIT physicist Alan Guth suggested that the very young universe had gone through a brief period of runaway expansion, which he called "inflation," and that this expansion had blown up one small corner of an earlier universe into everything we see.

### 3 Theories That Might Blow Up the Big Bang

1. Event Horizon: The boundary in spacetime beyond which events cannot affect an observer. It is a surface of no return, like the surface of a black hole. In the context of the Big Bang, it refers to the point from which light has not had time to reach us since the beginning of the universe.

2. Dark Energy: A mysterious force that is causing the universe to expand at an accelerating rate. It is the dominant component of the universe's energy density and is thought to be responsible for the observed acceleration of the expansion of the universe.

3. Quantum Fluctuations: Small, random variations in the energy density of the universe. These fluctuations are thought to be the seeds of the large-scale structure of the universe, including galaxies and galaxy clusters. Some theories suggest that these fluctuations could lead to the formation of new universes, potentially blowing up the Big Bang.

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