

The Einstein- Schrödinger - Hawking Theory of Quantum Gravity

JANNE PURA



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Hawking Theory
of
Quantum Gravity*

Dedicated
to
My wife Maria
and
Our three children.

Janne Pura

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Foreword

This book is a layman's story about quantum mechanics, gravity and cosmology based on mathematical intuition.

Janne Pura

26th September 2023 in Turku.

“The supreme goal of every theory is to make the irreducible basic elements as simple and as few as possible without having to surrender the adequate representation of simple datum of experience”

– Albert Einstein

Quantum Cosmology

"...we may be able to understand the big bang or big crunch (in particular, whether time has beginning or an end at these events) when we have satisfactory quantum theory of gravitation"

– Jamal Nazrul Islam

Quantum cosmology is a field of theoretical physics to develop a quantum theory of the universe.

Quantum cosmology tries to find answers related to the first phases of the universe.

Einstein's General Theory of Relativity describes the evolution of the universe but it is not quantum theory of time and space.

If you approach the Big Bang the General Relativity does not provide answer to such questions as gravitational singularity or the earliest events of the universe.

The mathematical functions in the classical theory of general relativity are continuous but quantum theory is discrete with fundamental units known as quants.

This is called quantization.

In quantum cosmology, the universe is treated as a wave function instead of classical four-dimensional spacetime.

Wheeler-DeWitt equation also called Einstein-Schrödinger equation combines mathematically quantum mechanics and general relativity.

Equation avoids the need for time dimension and it describes universe as a wave function as needed.

Wheeler-DeWitt-equation describes the geometry of the universe and is essential to understanding quantum gravity.

Quantum gravity describes events in which neither gravitational nor quantum effects can be ignored like in the early stages of the universe.

The supreme goal of every theory is to make the irreducible basic elements as simple and as few as possible without having to surrender the adequate representation of simple datum of experience
- Albert Einstein

This theory is made with layman's simple mathematical intuition and vivid imagination but not with any method of Physical Science or Astronomy. The Einstein - Schrödinger - Hawking Theory is simplified theory about Quantum Gravity and Cosmology. It is a theory which tried to combine Standard Model of Particle Physics to Quantum Field Theory and to Theory of General Relativity. It is obviously a bold statement!

Don't fear failure. Not failure, but low aim, is the crime. In glorious attempts it is glorious even to fail!
- Bruce Lee

