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How to talk about Einstein's general theory of relativity?

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I will here review the main conceptual contents of the theory of relativity in a non-mathematical way as far as possible. We start by the principle of equivalence and then go on to discuss the possibility of extending the principle of relativity to accelerated and particularly rotating motion. The significance of the phenomenon of inertial dragging in this connection is pointed out. Then we discuss whether there is any connection between experiencing acceleration of gravity and the curvature of space time. The next topic is how to obtain a proper understanding of the strange property of a classical black hole that nothing can come out of it. We point out the significance of the so called "river of space" in this connection. Finally we discuss the phenomenon of repulsive gravitation and the difference between Einstein's interpretation of the cosmological constant and its modern interpretation.

Biography

Oyvind G Gron is a Norwegian Physicist. He took the Cand. Real. Degree at the University of Oslo in 1973, majoring in Meteorology. He followed up with Dr. Philos. Degree in 1990 with a thesis on Repulsive Gravitation. He was appointed as a Professor at Oslo University College in 1994. He has also been Professor II at the University of Oslo since 1994. He has conducted research within the areas of general relativity, cosmology and classical electromagnetism. He has thrown new light on themes like the twin paradox, the physics in a rotating reference system and repulsive gravitation associated with vacuum energy. Together with Erik Eriksen at the University of Oslo, he has also studied properties of the electromagnetic field produced by accelerated electric charges. They have in particular shown how gravitation modifies such fields. He has also found new solutions to equations in Einstein's theory of gravity that describe time space where one can travel backwards in time. In several studies, he has focused on relativistic models of the universe. He has, among other things, shown that it is possible to interpret observations from cosmos so that the concept of dark energy is unnecessary. The relationship between gravitation and time and between gravitation and entropy are also themes where he has contributed several journal articles. He has 153 research articles, and has written 3 books on the theory of relativity published by Springer.

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