A novel approach to quantum gravity

Business

Curiosity may have killed the cat but it has proved itself man's trump card time and again. This mental faculty of ham has led him to ask questions as interesting as: How can we describe how the motion of planets and other heavenly bodies? How our universe has evolved? All these questions are related to gravity. Physicists have been trying to explain these things for many years. The first scientific approach to compute planetary motion was performed by Sir Isaac Newton. He observed that the force of gravity is proportional to the mass of the objects that are attracted by gravity. His theory of gravity has been considered valid for over 200 years.

Later, Albert Einstein, developed a new concept of gravity. First, he formulated the Special Theory of Relativity. Special Relativity relies on the assumption that the speed of light is independent in every observer system and describes the dynamics of very fast objects including the necessity of a mass-energy relation, that reads: E= mc?. Later, he formulated this theory in a space-time continuum which is curved. Special Relativity in such a curved space-time is called General Relativity and is a more general approach to quantum gravity.

Things like the deflection of light in a gravitational field are predicted with this theory. Today, physicists try to unify General Relativity with Quantum Mechanics (a theory of physical systems on microscopic scales that treats e. g. elementary particles), which are the two major pillars of Modern Physics; such a unification is called " Quantum Gravity". However, this unification of General Relativity and Quantum Mechanics is not easy because of mathematical reasons.

Some models for quantum gravity were proposed, e. g. String Theory. String Theory is an extremely mathematical theory that assumes fundamental objects to be one-dimensional strings that are vibrating through multiple dimensions. Recently, an independent researcher, Patrick Linker, has found another approach to quantum gravity that is called “ E-gravity theory”.

This theory reformulates General Relativity on a space-time built up on triangle-like structures called “ simplices”. With a mathematical framework, a certain kind of space-time structure can be generated. An interesting feature is that the space-time is not simply curved; it is inhomogenous. From a theorem of physics, inhomogenous spacetime lead to a non-conservation of energy and momentum. Usually, energy and momentum are conserved in a scattering process between elementary particles.

But since gravity is taken into account, according to this theory, energy and momentum are not conserved.