

Discontinuous Spacetime with Vacuum Holes as Explanation for Gravitation, Quantum Mechanics and Teleportation

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Abstract : Hole Vacuum theory is based on discontinuous spacetime that contains vacuum holes. Vacuum holes can explain gravitation, some laws of quantum mechanics and allow teleportation of matter. All massive bodies emit a flux of holes which curve the spacetime; if we increase the concentration of holes, it leads to length contraction and time dilation because the holes do not have the properties of extension and duration. In the limited case when space consists of holes only, the distance between every two points is equal to zero and time stops - outside of the Universe, the extension and duration properties do not exist. For this reason, the vacuum hole is the only particle in physics capable of describing gravitation using its own properties only. All microscopic particles must 'jump'; continually and 'vibrate'; due to the appearance of holes (impassable microscopic 'walls'; in space), and it is the cause of the quantum behavior. Vacuum holes can explain the entanglement, non-locality, wave properties of matter, tunneling, uncertainty principle and so on. Particles do not have trajectories because spacetime is discontinuous and has impassable microscopic 'walls'; due to the simple mechanical motion is impossible at small scale distances; it is impossible to 'trace'; a straight line in the discontinuous spacetime because it contains the impassable holes. Spacetime 'boils'; continually due to the appearance of the vacuum holes. For teleportation to be possible, we must send a body outside of the Universe by enveloping it with a closed surface consisting of vacuum holes. Since a material body cannot exist outside of the Universe, it reappears instantaneously in a random point of the Universe. Since a body disappears in one volume and reappears in another random volume without traversing the physical space between them, such a transportation method can be called teleportation (or Hole Teleportation). It is shown that Hole Teleportation does not violate causality and special relativity due to its random nature and other properties. Although Hole Teleportation has a random nature, it can be used for colonization of extrasolar planets by the help of the method called 'random jumps'; after a large number of random teleportation jumps, there is a probability that the spaceship may appear near a habitable planet. We can create vacuum holes experimentally using the method proposed by Descartes: we must remove a body from the vessel without permitting another body to occupy this volume.

Keywords : border of the Universe, causality violation, perfect isolation, quantum jumps

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