Losing energy in classical, relativistic and quantum mechanics.

Atkinson, David (2006) Losing energy in classical, relativistic and quantum mechanics..

Abstract

A Zenonian supertask involving an infinite number of colliding balls is considered, under the restriction that the total mass of all the balls is finite. Classical mechanics leads to the conclusion that momentum, but not necessarily energy, must be conserved. Relativistic mechanics, on the other hand, implies that energy and momentum conservation are always violated. Quantum mechanics, however, seems to rule out the Zeno configuration as an inconsistent system.

Keywords:	Zeno supertask, conservation laws, relativity, quantum mechanics
Subjects:	Specific Sciences: Physics: Relativity Theory Specific Sciences: Physics Specific Sciences: Physics: Quantum Mechanics
ID Code:	2639
Deposited By:	Atkinson, David
Deposited On:	20 Febuary 2006