Relativistic Force Generator: Coil-Coil & Magnet-Coil Cases

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Newton's third law states that any action is countered by a reaction of equal magnitude but opposite direction. The total force in a system not affected by external forces is thus zero. However, according to the principles of relativity a signal cannot propagate at speeds exceeding the speed of light. Hence the action cannot be generated at the same time with the reaction because the information about the action has to reach the affected object and the affected object still needs additional time to react on the source, hence the total force cannot be null at a given time. The following analysis provides for a better understanding of the ways natural laws would behave within the framework of Special Relativity, and on how this understanding may be used for practical purposes including a relativistic ponder motive force generator. In such a system the linear momentum is conserved but is transferred from the material part of the physical system to the field part. The relativistic force generator is demonstrated using two different physical systems: a coil-coil system and a magnet-coil system. At least one of the devices is activated by short pulses.

Bibliography

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