

Radiation Reaction of Relativistic Charged Particles

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Radiation reaction is a natural consequence of classical electromagnetism. When used carelessly, it can lead to paradoxical predictions such as an exponentially increasing acceleration or non-causal behavior. A proper description of accelerated charges requires a charge distribution of finite size, and a second force that prevents the charge distribution from disintegrating. We model the behaviour of an elastic relativistic dumbbell of two charges, held together by Yukawa forces undergoing arbitrary motion and experiencing radiation reaction.