

Relativistic Lorentz force equation with singular electric fields

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We develop a suitable version of the Mountain Pass Theorem in the framework of the Szulkin's critical point theory which allows to study the existence of periodic solutions for the relativistic Lorentz force equation

$$\left(\frac{q'}{\sqrt{1 - |q'|^2}} \right)' = E(t, q) + q' \times B(t, q),$$

with singular electric field $E(t, q)$ and smooth magnetic field $B(t, q)$.

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