Periodic critical orbits for the relativistic operator

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Abstract

We are concerned with the existence of geometrically distinct periodic solutions for N-dimensional systems involving the relativistic operator

$$\mathcal{R}u := \left(\frac{u'}{\sqrt{1-|u'|^2}} \right)' .$$

Both of the cases of continuous and discontinuous periodic perturbations of $\mathcal{R}$ are discussed. The approach is variational and makes use of the existence of critical orbits for G-invariant functionals.

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