

INSALATE DI MATEMATICA



When Electrostatics meets Lorentzian Geometry: the Born–Infeld equation

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IN THIS TALK

A well-known feature of Maxwell's electrodynamics is that a static point charge generates a field whose static energy is infinite. This is physically unsatisfactory, and in fact in the 1930s Born and Infeld proposed an alternative classical theory of the electromagnetic interaction that overcomes this issue. The drawback is that the new theory is non-linear, making it mathematically much more involved. In this talk I will focus on the electrostatics of the Born–Infeld theory, explaining why it is a challenging problem from the perspective of regularity theory and how it is closely related to the geometry of spacelike hypersurfaces in spacetime.

words: Prescribed Lorentzian mean curvature, Born–Infeld model, Euler–Lagrange equation, Regularity of solutions, Measure data.

“Obvious” is the most dangerous word in mathematics.

(Eric Temple Bell)



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4:45 pm (CEST)