

# Proposal for observing the Unruh effect with classical electrodynamics

Gabriel Cozzella,<sup>1,\*</sup> André G. S. Landulfo,<sup>2,†</sup> George E. A. Matsas,<sup>1,‡</sup> and Daniel A. T. Vanzella<sup>3,§</sup>

<sup>1</sup>*Instituto de Física Teórica, Universidade Estadual Paulista,  
Rua Dr. Bento Teobaldo Ferraz, 271, 01140-070, São Paulo, São Paulo, Brazil*

<sup>2</sup>*Centro de Ciências Naturais e Humanas, Universidade Federal do ABC,  
Avenida dos Estados, 5001, 09210-580, Santo André, São Paulo, Brazil*

<sup>3</sup>*Instituto de Física de São Carlos, Universidade de São Paulo,  
Caixa Postal 369, 13560-970, São Carlos, São Paulo, Brazil*

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The Unruh effect – according to which linearly accelerated observers experience a thermal bath of particles while inertial ones see none – completed its 40th anniversary in 2016. A 'direct' experimental confirmation of the Unruh effect has been seen with concern because the linear acceleration needed to reach a temperature 1K is of order  $10^{20}$  m/s. Although the Unruh effect can be rigorously considered as well tested as free quantum field theory itself, it would be satisfying to observe some lab phenomenon which could evidence its existence. We discuss here an experiment we proposed [1] reachable under present technology whose result may be directly interpreted in terms of the Unruh thermal bath. Moreover, we use standard classical electrodynamics to anticipate its output and show that it reveals the presence of a thermal bath with temperature  $T_U$  in the accelerated frame.

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[1] Gabriel Cozzella, Andr G.S. Landulfo, George E.A. Matsas, and Daniel A.T. Vanzella, “*Proposal for Observing the Unruh Effect using Classical Electrodynamics*”;

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