

Abstract Submitted  
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**Electron-Positron Pair Production by the Impact of a High-Power Laser Pulse on Relativistic Ions**<sup>1</sup> KATARZYNA KRAJEWSKA, University of Nebraska-Lincoln, USA, and Institute of Theoretical Physics, University of Warsaw, Poland, JERZY Z. KAMIŃSKI, Institute of Theoretical Physics, University of Warsaw, Poland, FRITZ EHLOTZKY, Institute for Theoretical Physics, University of Innsbruck, Austria — With presently available laser sources, which can yield powers such that the ponderomotive energy of an electron can be much larger than twice the energy of an electron at rest, it has become of interest to reconsider fundamental processes of quantum electrodynamics in such fields, in particular, electron-positron pair production in collisions of laser pulses and highly charged ions. We calculate highly nonlinear production rates for that process, and investigate the most favorable conditions for pair creation, either along the direction of linear polarization, or in the propagation direction of the laser pulse.

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