

Abstract Submitted
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Light-front time evolution in intense fields¹ GUANGYAO CHEN,
Department of Physics and Astronomy, Iowa State University, XINGBO ZHAO, In-
stitute of Modern Physics, Chinese Academy of Sciences, China, YANG LI, PIETER
MARIS, KIRILL TUCHIN, JAMES VARY, Department of Physics and Astronomy,
Iowa State University — We report on the influence of strong electromagnetic fields
generated by an ultra-relativistic heavy ion on the quantized field of a charged
fermion particle using the time-dependent basis light-front quantization (tBLFQ)
approach. We calculate transitions of the charged fermion and find agreement with
light-front perturbation theory at small coupling. We then present non-perturbative
effects, such as the real-time evolution of the momentum distribution and the he-
licity configuration of the fermion in strong fields. We will discuss prospects for
applying the tBLFQ formalism to time-dependent QED and QCD fields in heavy
ion collisions and electron-ion collisions.

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Guangyao Chen
Department of Physics and Astronomy, Iowa State University

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