

Subcritical Vacuum Pair Production with High-Power Lasers

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Abstract

With short-pulse lasers producing ultra-strong electrical fields, new effects such as vacuum pair production may become accessible [1]. Non-equilibrium QED [2] necessary for the theoretical approach has recently been worked out, and new approaches such as nonperturbative QED and non-Markovian quantum kinetics have been elaborated [3, 4]. Expressions for the time-dependent pair density are derived, and estimations for high fields produced in crossing laser beams are given [5]. A planned experiment at the Astra-Gemini laser facility is discussed [6].

References

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