ELSEVIER

25 September 1995

PHYSICS LETTERS A

Physics Letters A 205 (1995) 355–358

PASER: particle acceleration by stimulated emission of radiation

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Received 15 May 1995; accepted for publication 14 August 1995
Communicated by P.R. Holland

Abstract

Cherenkov radiation occurs when an electron traverses a passive dielectric material at a velocity which exceeds the phase velocity of an electromagnetic wave in the medium; thus the electron is decelerated. It is shown that if the electron traverses an active medium it may be accelerated. The acceleration is proportional to the population inversion.

PACS: 52.75.Di; 41.60.Bq; 41.75.–i