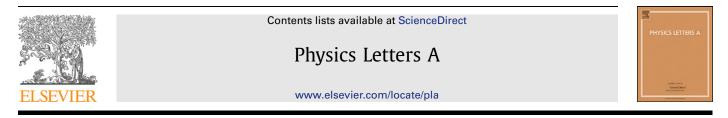
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Particle acceleration by stimulated emission of radiation near a solid-state active medium

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ABSTRACT

Article history: Received 12 October 2010 Received in revised form 24 November 2010 Accepted 25 November 2010 Available online 30 November 2010 Communicated by P.R. Holland We report acceleration of electrons moving in free space near an active Nd:YAG slab. The power of a non-relativistic beam of electrons has increased by more than 30% when the medium was excited. It is demonstrated experimentally that the energy gained by the electrons is linearly proportional to the energy stored in the medium. Moreover, the energy gain traces closely the population inversion inferred by monitoring the spontaneous radiation.

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