

Particle acceleration in an active medium

Levi Schächter

Department of Electrical Engineering, Technion–Israel Institute of Technology, Haifa 32000, Israel

(Received 15 August 1994; revised manuscript received 4 January 1996)

It is shown that a bunch of electrons which move in an active medium can be accelerated. The acceleration is proportional to the population inversion and the number of electrons in the bunch. As reference we compare the acceleration force with the deceleration experienced by the same bunch as it traverses a dielectric and metallic medium. [S1063-651X(96)08005-1]

PACS number(s): 41.60.Bq, 41.75.–i, 52.75.Di