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# Drift velocity of free electrons in liquid argon

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## Abstract

A measurement of the drift velocity of free electrons in liquid argon has been performed. Free electrons have been produced by photoelectric effect using laser light in a so-called “laser chamber”. The results on the drift velocity  $v_d$  are given as a function of the electric field strength in the range  $0.5 \text{ kV/cm} \leq |E| \leq 12.6 \text{ kV/cm}$  and the temperature in the range  $87 \text{ K} \leq T \leq 94 \text{ K}$ . A global parametrization of  $v_d(|E|, T)$  has been fitted to the data. A temperature dependence of the electron drift velocity is observed, with a mean value of  $\Delta v_d / (\Delta T v_d) = (-1.72 \pm 0.08) \% / \text{K}$  in the range of 87–94 K.