

FIG. 9. The time dependence of electron collisions following a 500 keV electron beam pulse (5-ns FWHM) in an Ar/Kr/F $_2$ = 90/10/0.25 mixture. (top) Ionization and attachment events in a 1-atm mixture. Attachment cross sections are important only for ϵ < 2 eV. Since thermalization is slow once electrons fall below the electronic thresholds of the buffer gas, there is a disparity in time between when ionizations and attachments occur. (bottom) Ionization events at pressures of 1, 2, and 6 atm. The ϵ -beam response time at 6 atm is sufficiently small that ionizations track the ϵ -beam current.

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TIME (ns)

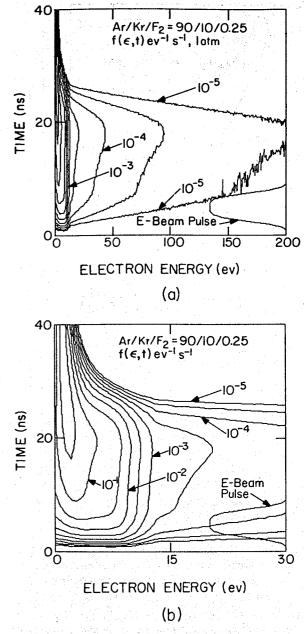


FIG. 6. The electron spectrum as a function of energy and time $(eV^{-1}s^{-1})$ for a 500-keV e-beam pulse (5-ns FWHM) slowing in a 1-atm Ar/Kr/ $F_2 = 90/10/0.25$ mixture; (a) $0 \le \epsilon \le 200$ eV, and (b) $0 \le \epsilon \le 30$ eV. The time dependence of the e-beam pulse is at the bottom right in each figure. The e-beam response time for these conditions is ≈ 20 ns. Note the transition to thermalization at 20–30 ns.