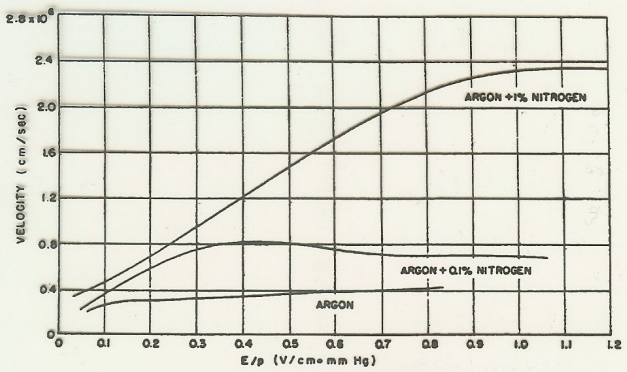


Fig. 25 Drift velocity of electrons in [illegible] argon, and in argon with small added quantities of nitrogen. The very large effect on the velocity for small additions is apparent[22]).

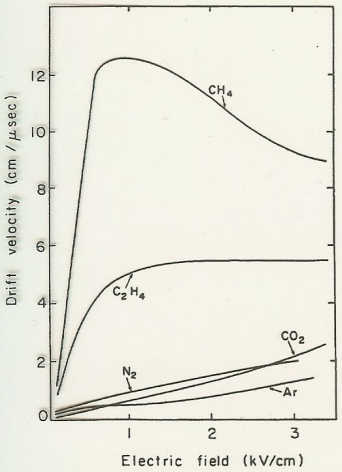


Fig. 26 Drift velocity of electrons in several gases at normal conditions[12,22,23])

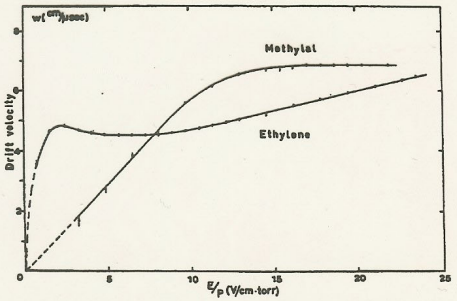
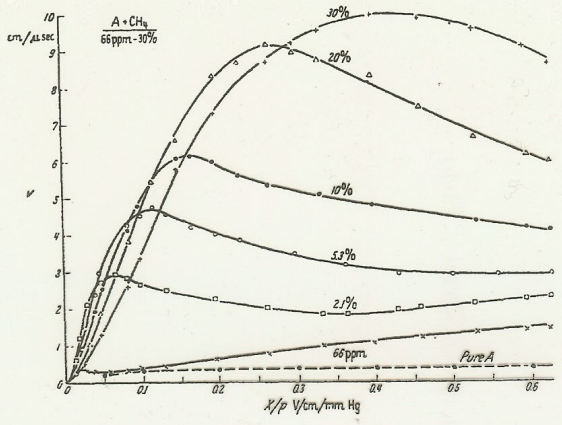


Fig. 27 Drift velocity of electrons in methylal $[(OCH_3)_2CH_2]$ and in ethylene (C_2H_4) [24])



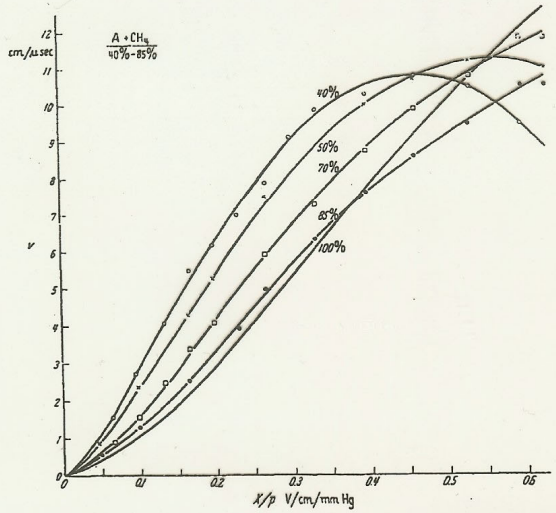
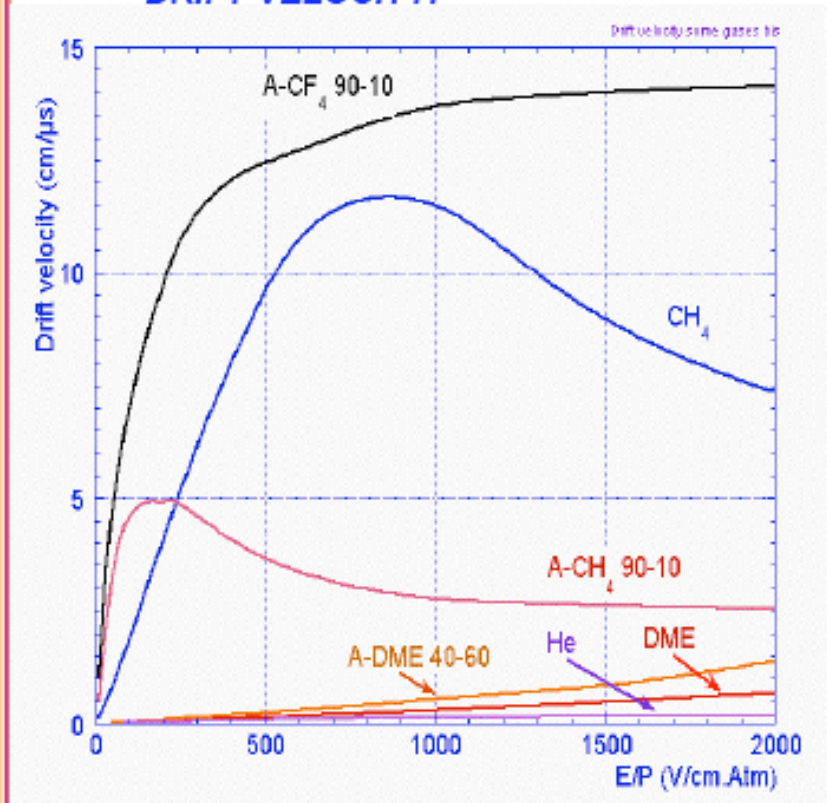


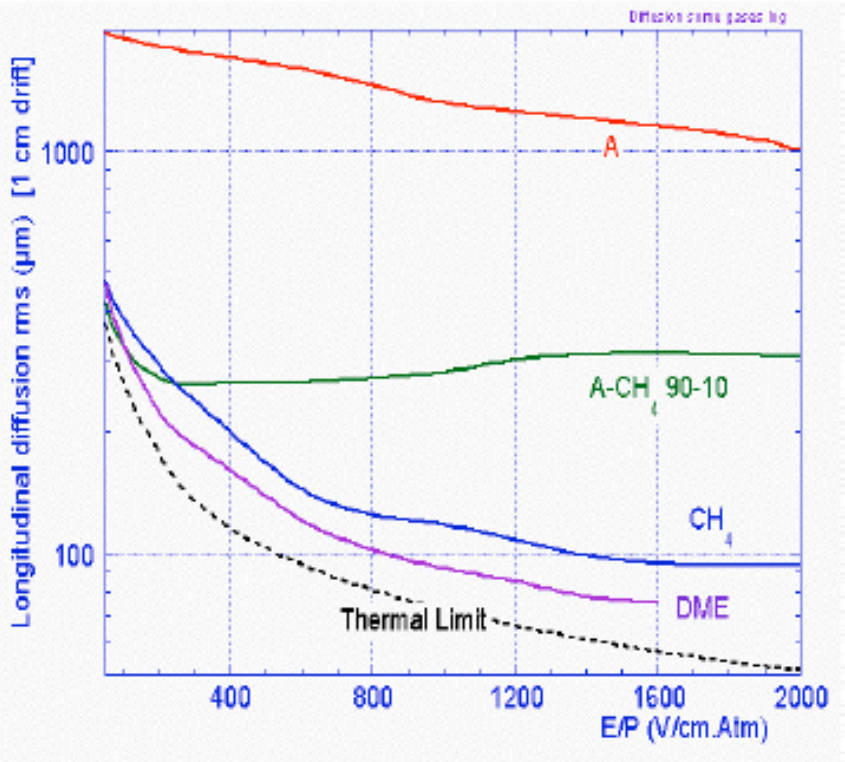
Fig. 28 Drift velocity of electrons in several argon-methane mixtures[12])

LARGE RANGE OF DRIFT VELOCITIES AND DIFFUSIONS

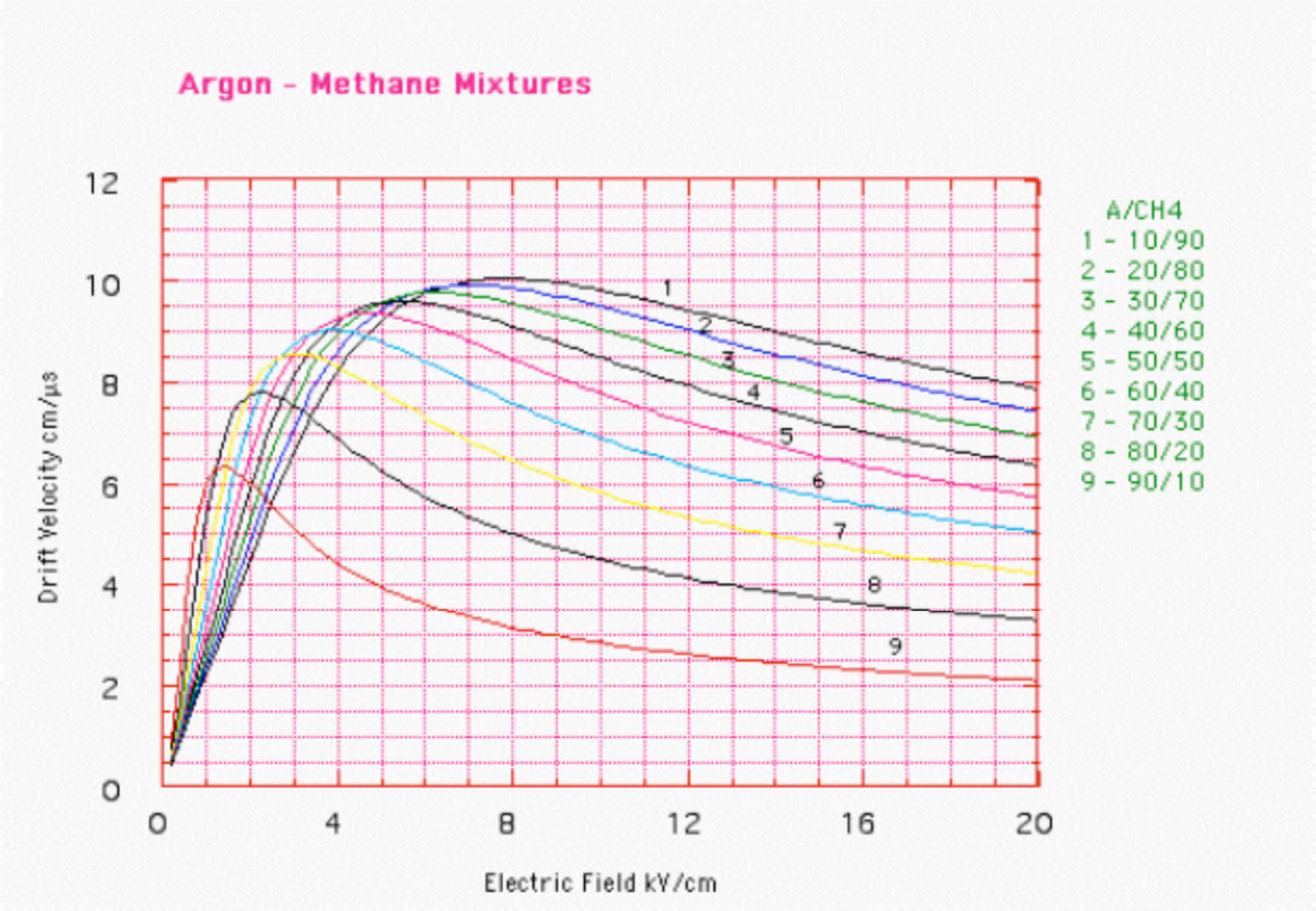
DRIFT VELOCITY:



DIFFUSION:

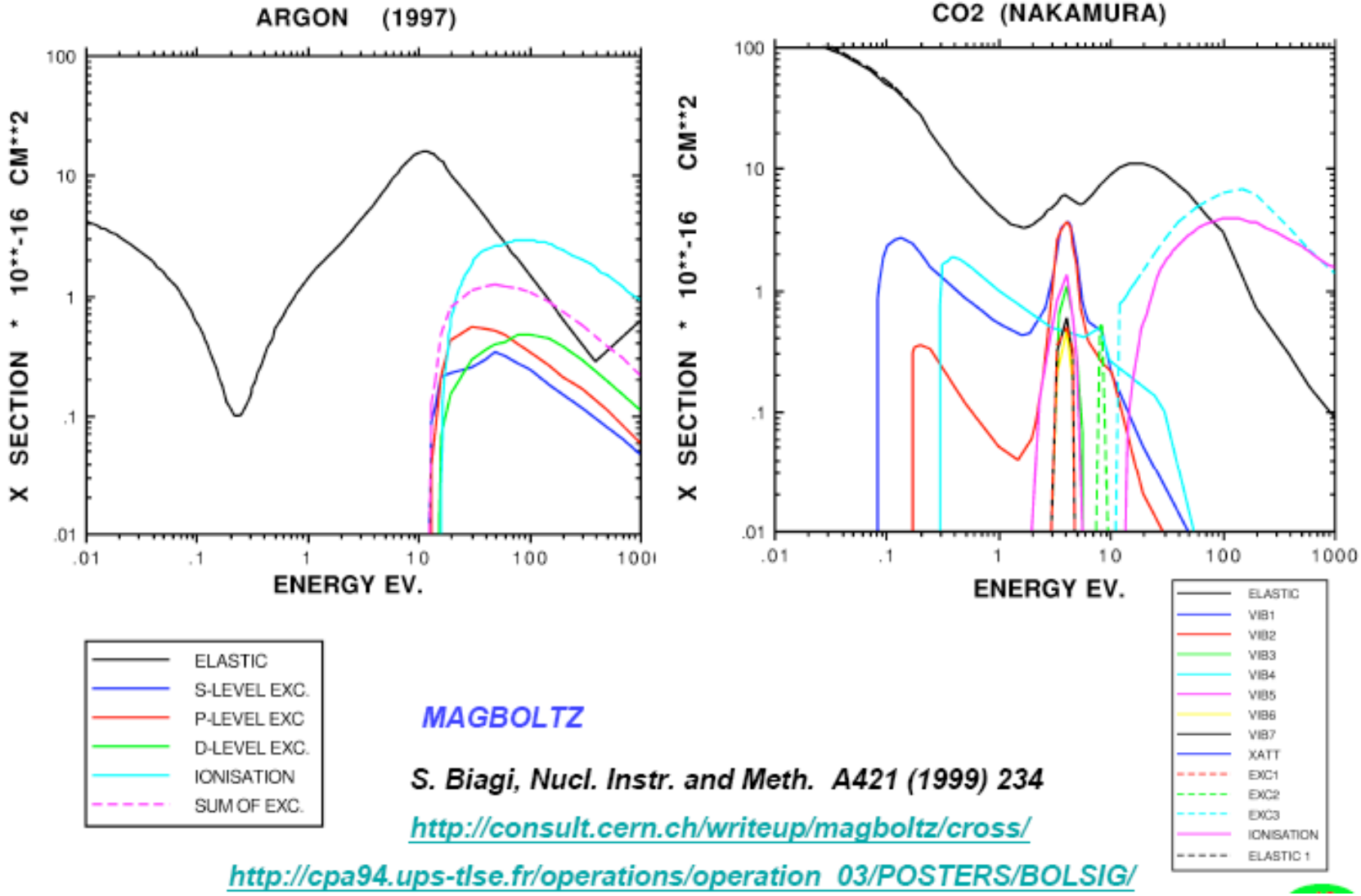


COMPUTED DRIFT VELOCITY IN MIXTURES



http://consult.cern.ch/writeup/garfield/examples/gas/trans2000.html#elec

CHARGE TRANSPORT DETERMINED BY ELECTRON-MOLECULE CROSS SECTION:



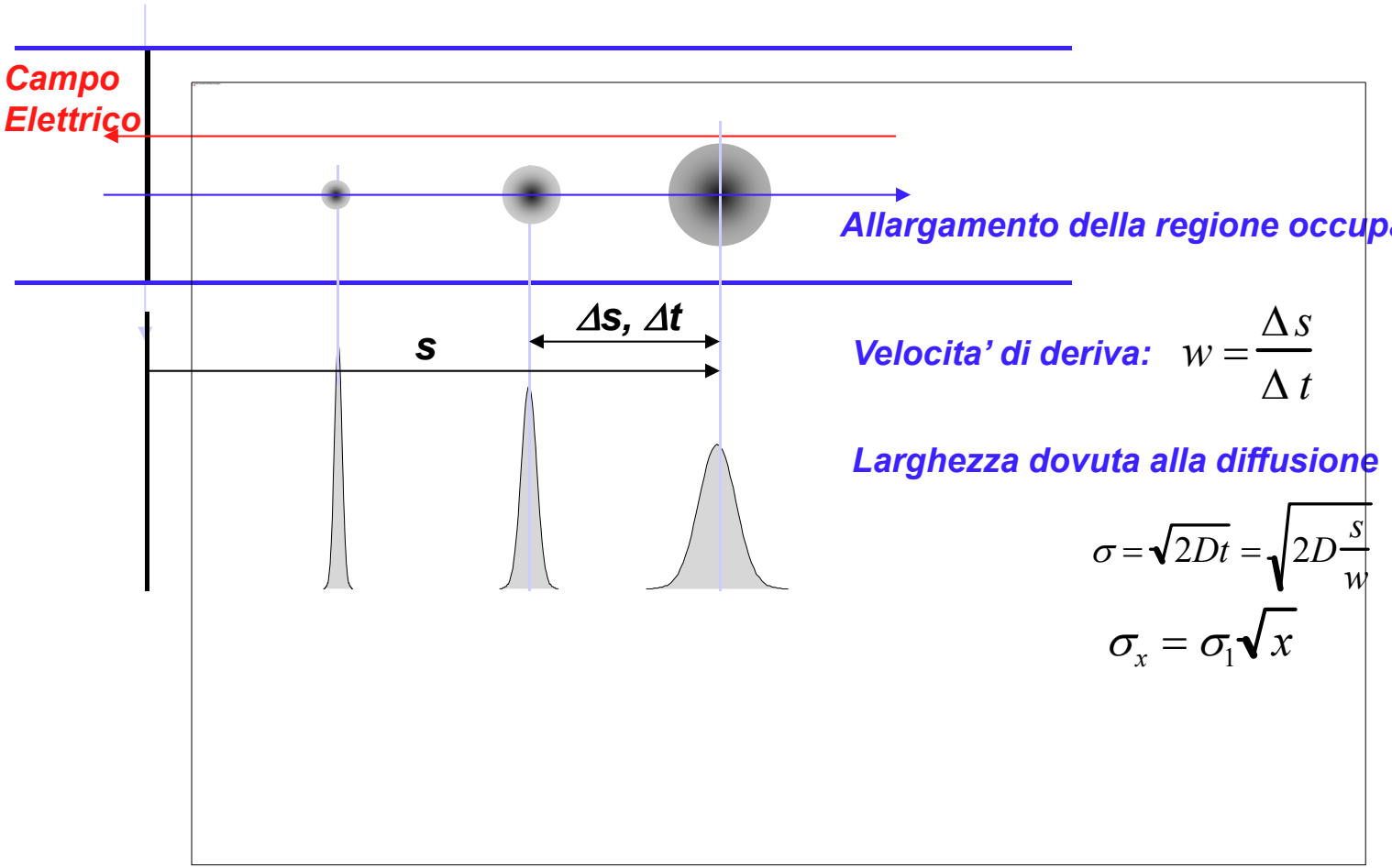
MAGBOLTZ

S. Biagi, Nucl. Instr. and Meth. A421 (1999) 234

http://consult.cern.ch/writeup/magboltz/cross/

http://cpa94.ups-tlse.fr/operations/operation_03/POSTERS/BOLSIG/

Deriva e diffusione degli elettroni



Velocita' di deriva: $w = \frac{\Delta s}{\Delta t}$

Larghezza dovuta alla diffusione

$$\sigma = \sqrt{2Dt} = \sqrt{2D\frac{s}{w}}$$

$$\sigma_x = \sigma_1 \sqrt{x}$$

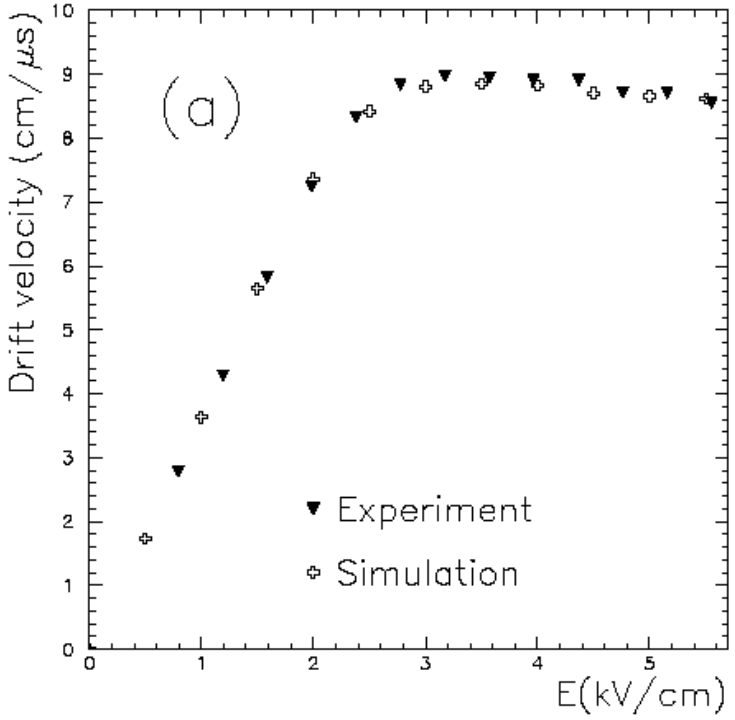
Velocita' di deriva degli elettroni

Velocita' di deriva in una miscela $Ar/CO_2/CF_4$ (60/20/20).

Satura a

$w^- \approx 10$ cm/μs
$\Rightarrow$100 μm/ns

3000 volte la velocita' degli ioni



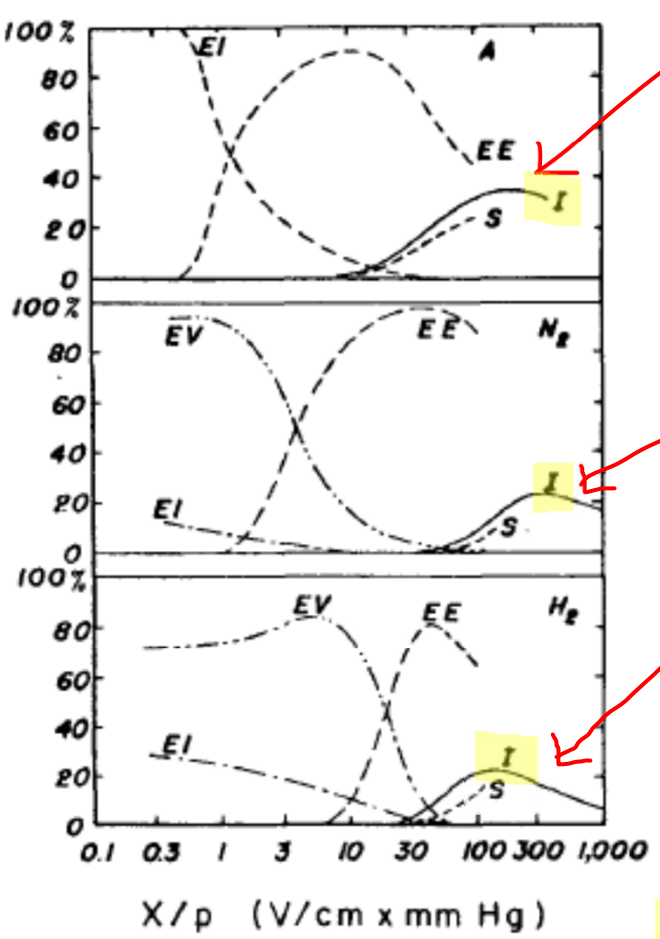


Fig. 43

Approximate curves showing the fraction of energy going into different processes in argon, nitrogen and hydrogen as a function of the reduced electric field[18]. In the figure, El represents the elastic impacts, EV the vibrational excitations, EE the excitations leading to photon emission and I the ionizations.