Fig. 1. Diffusion coefficients of electrons in liquid xenon and argon versus the density-normalized electric field. The full circles represent the authors' results and the open circles the results obtained by Derenzo {LBL, Group A Physics Note No. 786 (1974) unpublished]. T.Doke, NIM 196 (1982), 87

diffusion :
widening pulse shape

$$\sigma^2=2Dt=2DL/v$$
$$C_D^2=D/v$$

Example:
t=104µsec
D=50cm^2/sec
C_D=145µm/SQRT(cm)
σ=1mm
note : 170µm/SQRT(cm)

spatial resolution

$$\sigma_x = \sqrt{\sigma_x(0)^2+C_D^2/N_{eff}z}$$

N_{eff}=no. of electrons
if N_{eff}=1000 and z=24cm,
$C_D^2/N_{eff}z$= (20µm)^2
with pad–analog readout