



Radiation Damage in Ge

- Radiation damage produces predominantly hole traps (no electron traps?).
- Amount of traps depends on type of particle, particle fluence, crystal temperature, temperature history, crystal type (n or p)....
- Trapping length depends on amount of traps and electric field ($|E|$).
- Spectral response and pulse shape depends on electric field (E), trapping length and electrode geometry (weighting potential).

Radiation Damage in Ge

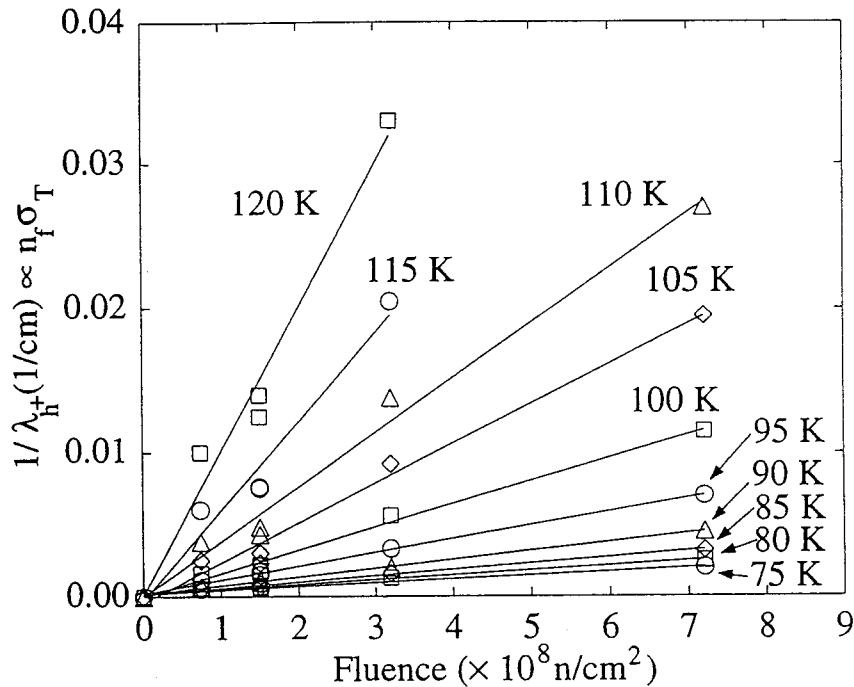


Figure 3.8: The amount of trapping as a function of fluence for the p-type planar detectors. The lines are fit to the data with a linear regression analysis.

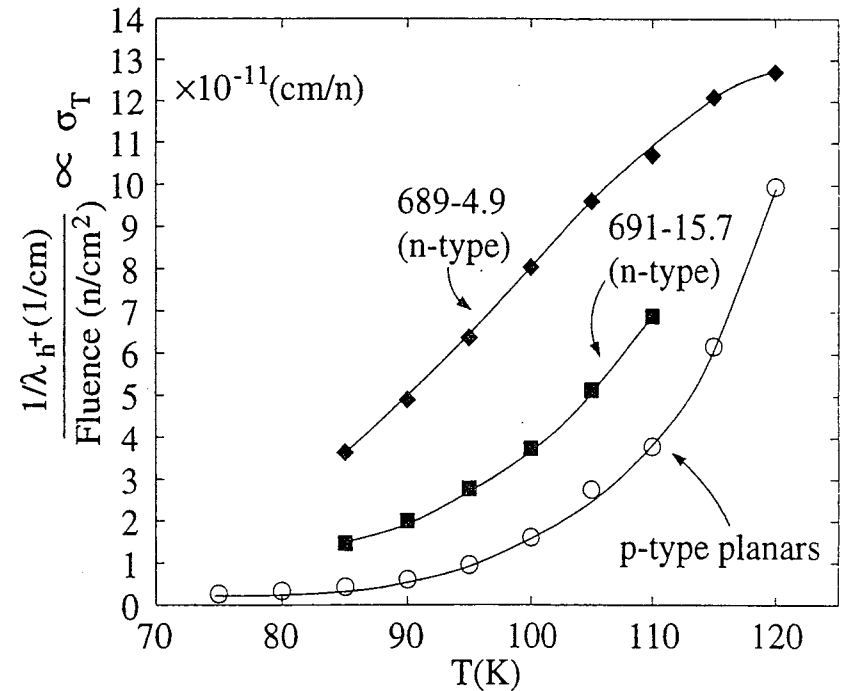


Figure 3.9: Hole-trap cross section as a function of temperature, fluence, typeness of detector, and the net impurity concentration of n-type detectors.

E. L. Hull, PhD Thesis, Indiana University, May 1998

Radiation Damage in Ge

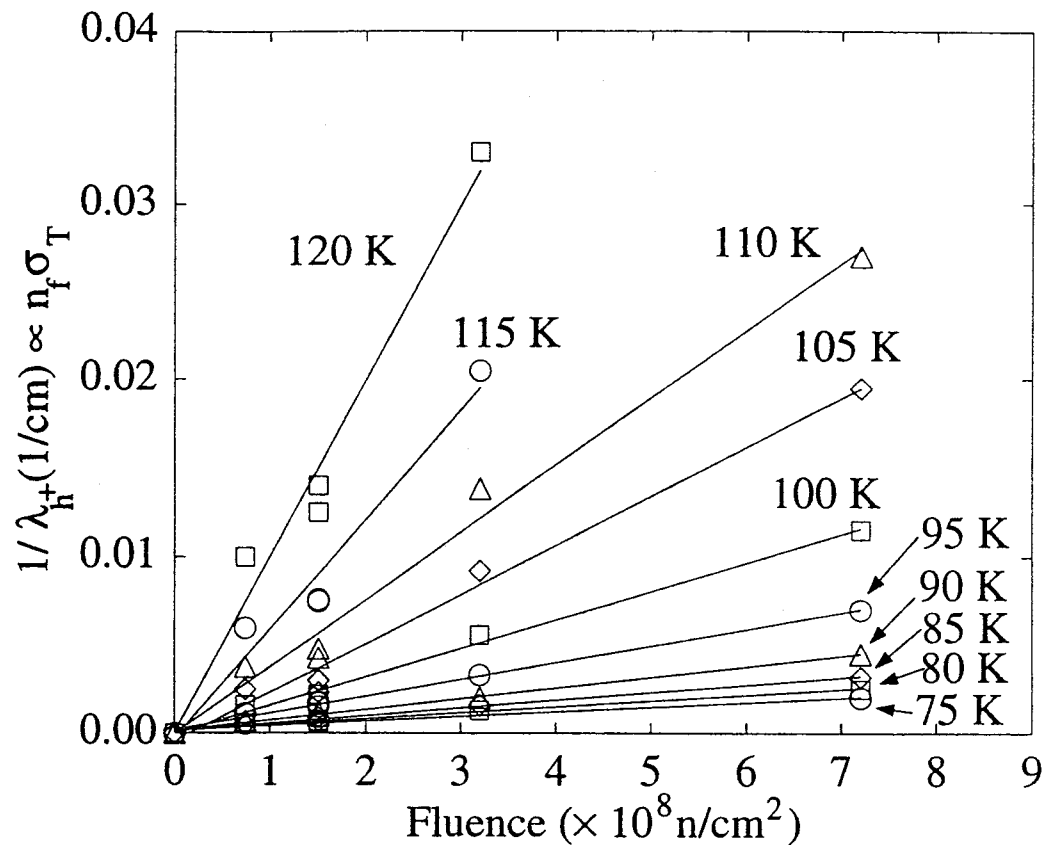
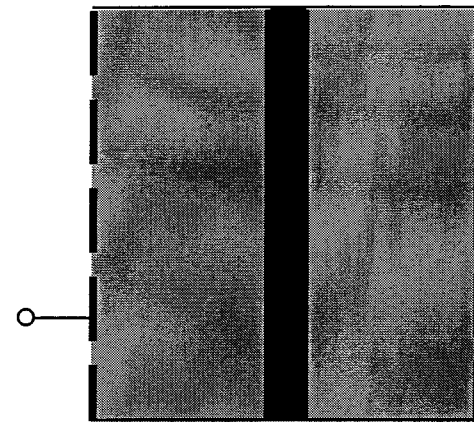
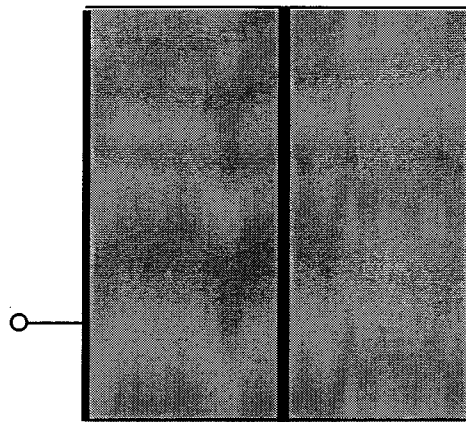
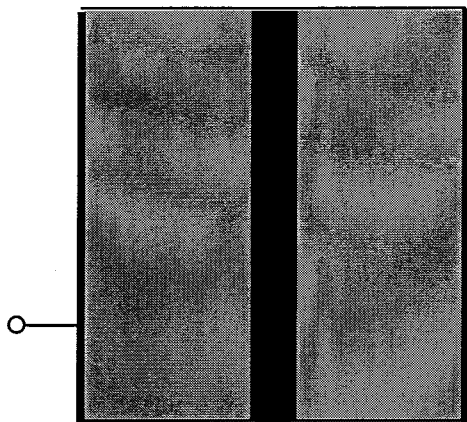


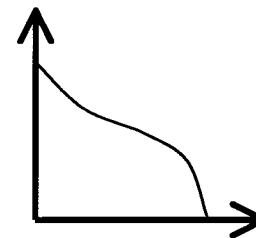
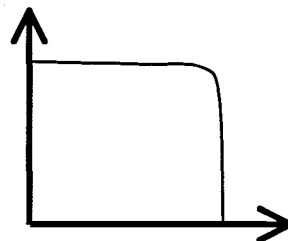
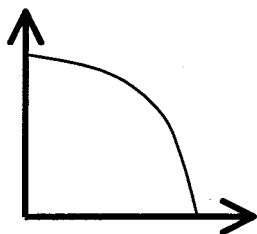
Figure 3.8: The amount of trapping as a function of fluence for the p-type planar detectors. The lines are fit to the data with a linear regression analysis.

E. L. Hull, Doctoral Thesis, Indiana University, May 1998

Effects of Electrode Geometry



Weighting potential



Spectral response

