

Electron degradation, in particular in Xe

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Note: Steve Biagi will attend the April meeting

The degrad program

- ▶ A successor to MIP.
- ▶ Shares cross sections with Magboltz.
- ▶ Simulates thermal degradation of electrons produced by:
 - ▶ ionisation due to charged particles (done by the program);
 - ▶ photons;
 - ▶ β and $\beta\beta$ decay.

Features of the degrad program

- ▶ Contains a more detailed shell structure than used to be available in Magboltz,
- ▶ Includes for nobles gases + CO₂, CH₄, CF₄, H₂ and N₂:
 - ▶ photo-electric effect;
 - ▶ fluorescence;
 - ▶ Auger effect;
 - ▶ Compton scattering (being implemented);
 - ▶ Bremsstrahlung to be discussed in April;
 - ▶ δ -electron tracking.

Output and use

- ▶ Applications in e.g. ^{136}Xe $\beta\beta$ decay searches.
- ▶ At the moment, output in the form of tables.
- ▶ To be interfaced with `Garfield++`

Work function & Fano factor for Xe

