Predicting hadron-specific damage from fast hadrons in crystals for calorimetry ETHzürich







mass number *i*

Entries 41150

> 10⁵ MeV/cm

 $\frac{\Gamma_{kin}}{\Lambda} > 10 \text{ keV}$

PRELIMINARY

Prediction of Rayleigh Scattering ratio

 Rayleigh Scattering assumes spheres. Here, we have dipole-shaped tracks, randomly oriented • Cannot determine a sharp cut, but we know $\mathcal{O}(\lambda/10)$: look at quantities vs. segment L_{cut} value



Bibliography

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Conclusions: FLUKA simulations yield fission track densities and track lengths consistent with measured ones. The FLUKA ratio of damage amplitudes is consistent with measurements within uncertainties. FLUKA can be used to estimate the expected magnitude of hadron damage.

