

## **RADIATION DAMAGES BOHR'S METRICS: THE ACCELERATOR AND ELEMENTAL LANDSCAPES**

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Nuclear interactions can be the source of atomic displacement; post-short-term cascade annealing defects; atomic, lattice interstitial gas dislocation; atomic activation, transmutation and heating in irradiated structural materials. Such quantities are derived from, or can be correlated to, nuclear kinematic simulations of the energy spectra of primary atomic recoil distributions, and the quantification of the numbers of secondary defects produced per primary as a function of the available recoils, residual or transmutant and emitted particles. Novel data forms for 83 naturally occurring element that include total and partial neutron defect-energy production, gas production cross section and kinetic energy release in material KERMA factors, have been systematically derived from ENDF/B-VIII.0, JENDL-5.0, JEFF-3.3, TENDL-2021 and CENDL-3.2 libraries. Numerical instance of integral damage quantities for legacy and novel nuclear components material alloys in NPPs, piles, fusion and accelerator devices typical irradiation conditions are being simulated in order to applicably founds material damage metrics landscapes.