

# Benchmark #1

## 2MeV Fe on Fe

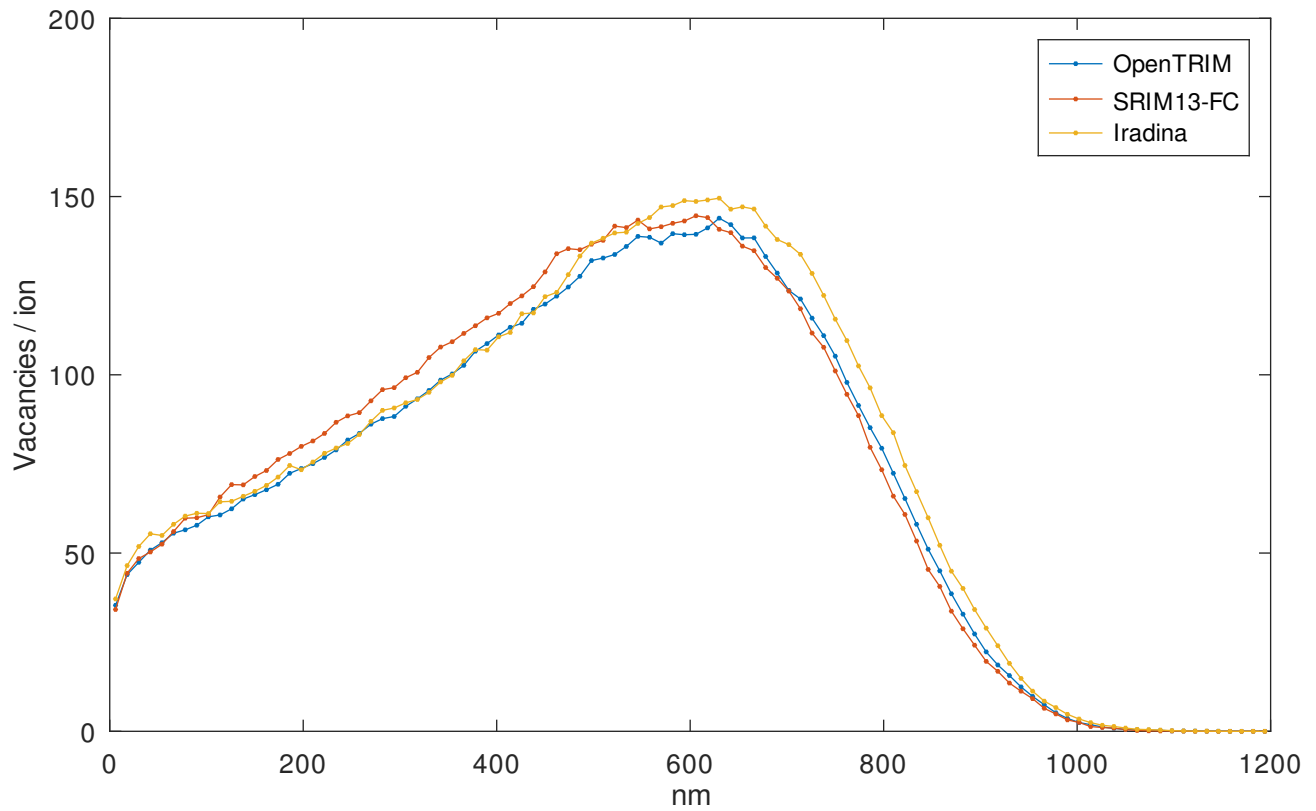
Ion energy  $E_0 = 2e+06$  eV

Target depth = 1200 nm

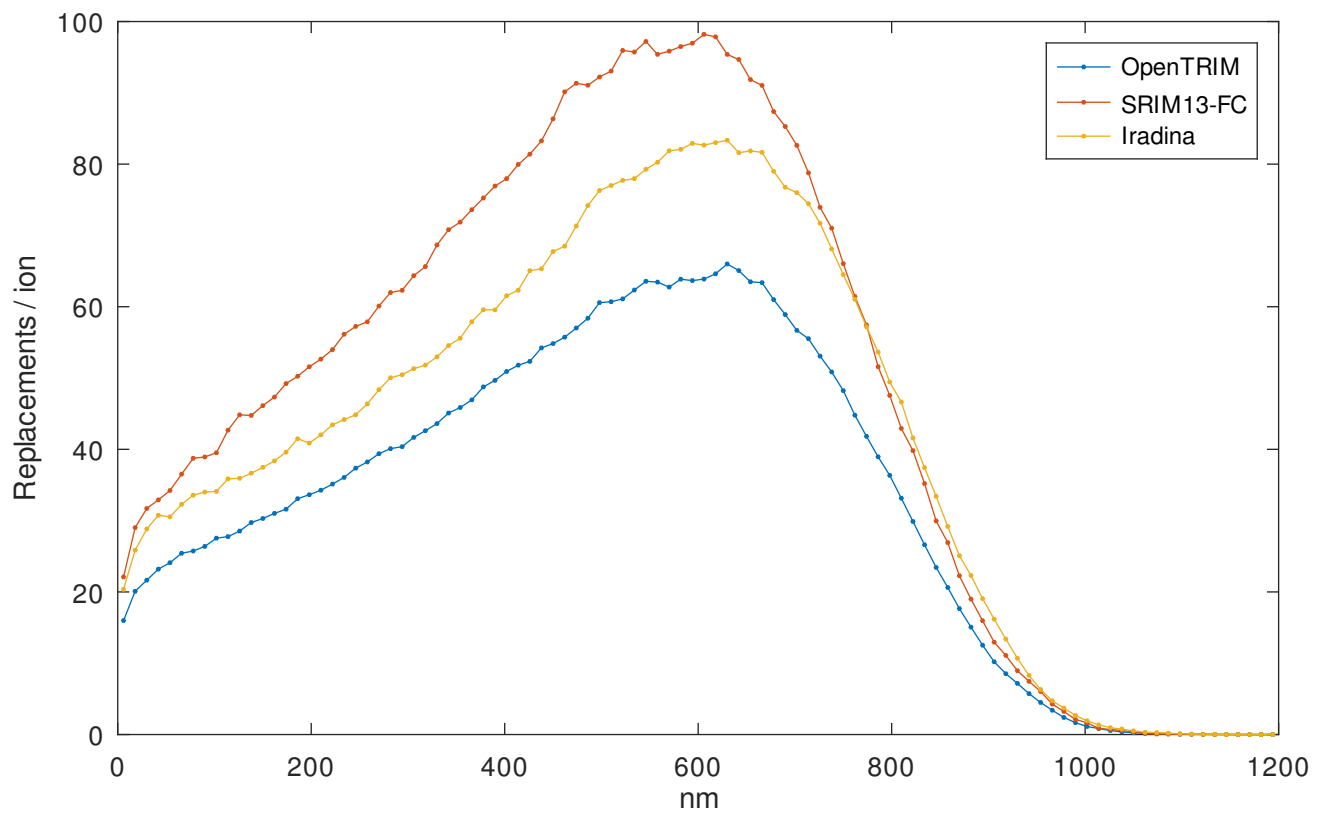
Summary Table

Quantity	OpenTRIM	SRIM13-FC	Iradina
$V(\text{Fe})$	7.16e+03	7.35e+03	7.53e+03
$R(\text{tot})$	3.28e+03	4.87e+03	4.19e+03
$I(\text{Fe})$	1	1	1
$EI(\text{Fe})/E_0$	0.556	0.552	0
$EI(r)/E_0$	0.112	0.112	0
$EI/E_0$	0.668	0.663	0.681
$EPh(\text{Fe})/E_0$	0.00348	0.0034	0
$EPh(r)/E_0$	0.328	0.325	0
$EPh(\text{tot})/E_0$	0.331	0.329	0.319
$1 - (EI + EPh)/E_0$	0.000282	0.00772	0.000285

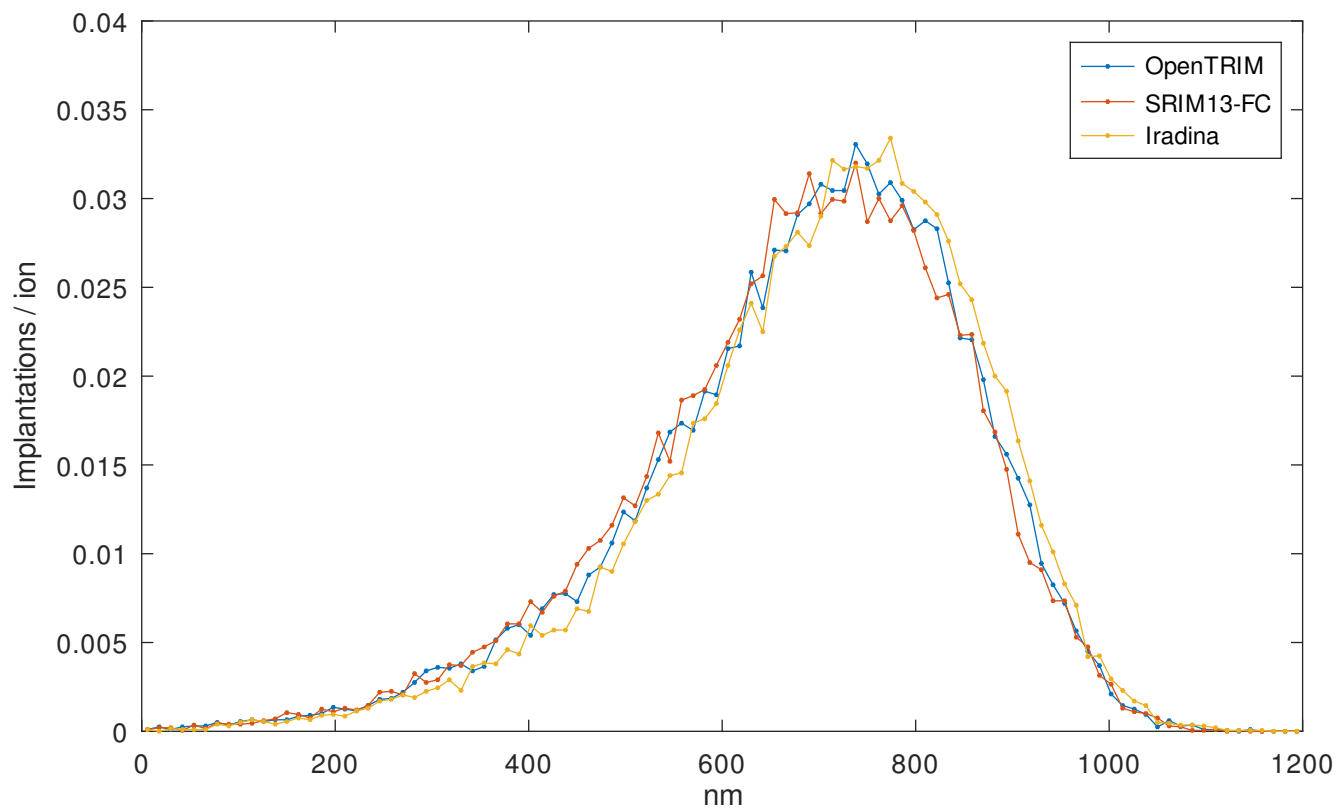
Vacancies of Fe in Fe



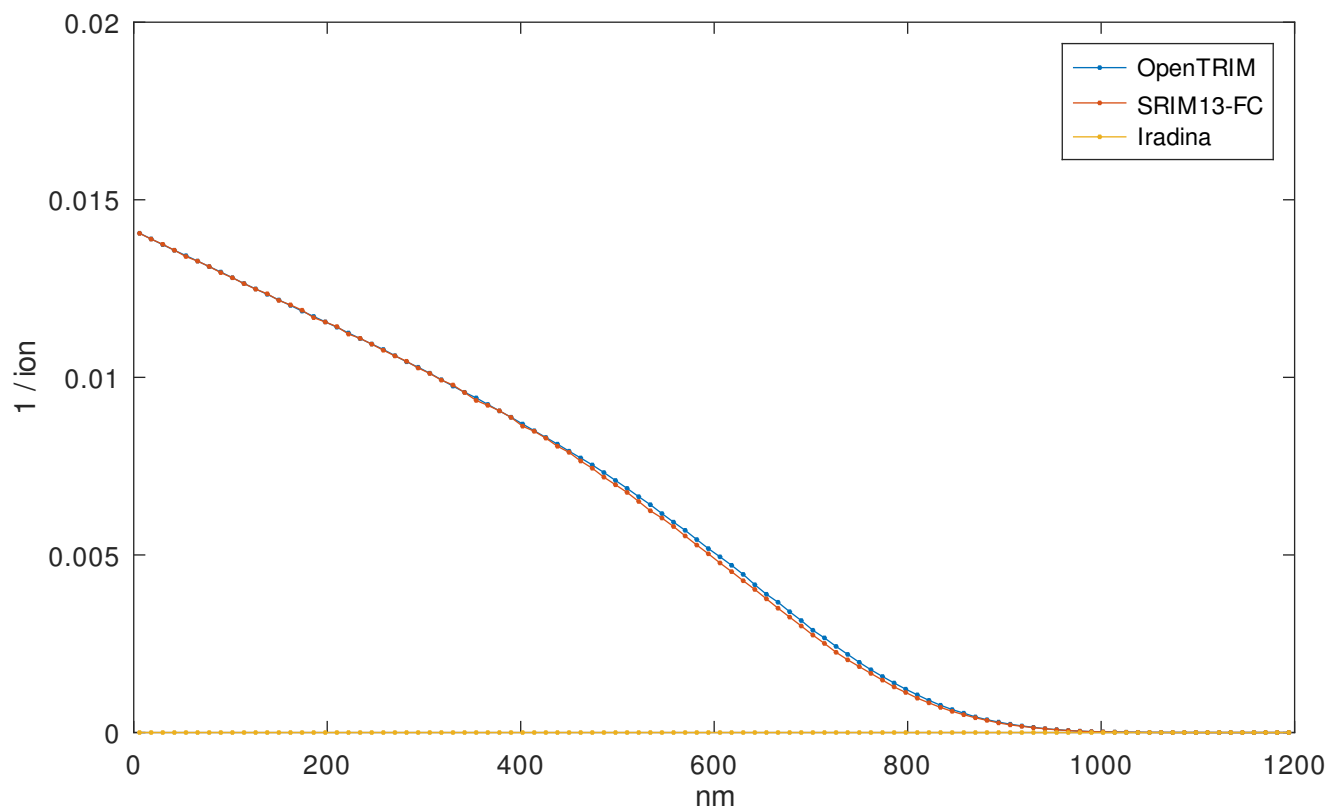
Replacements



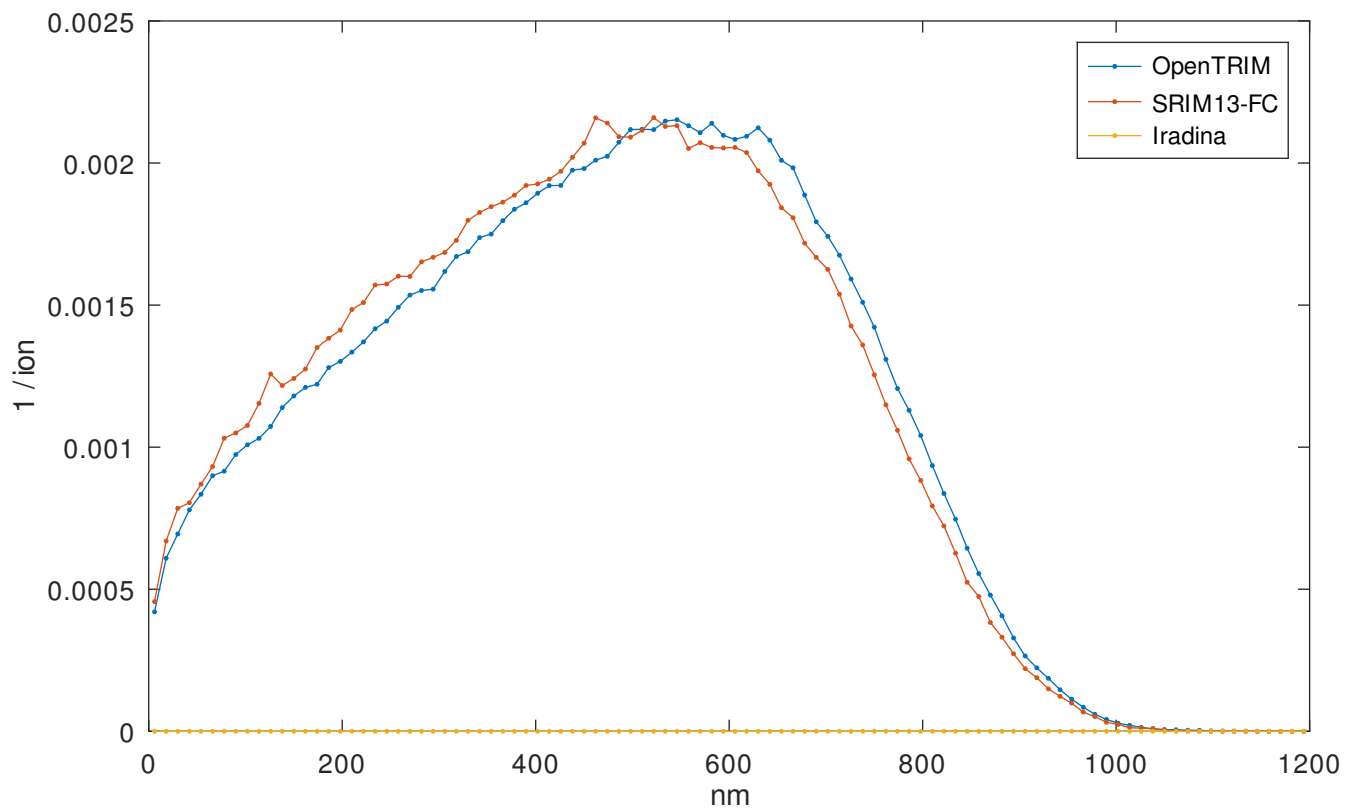
Implanted Fe ion



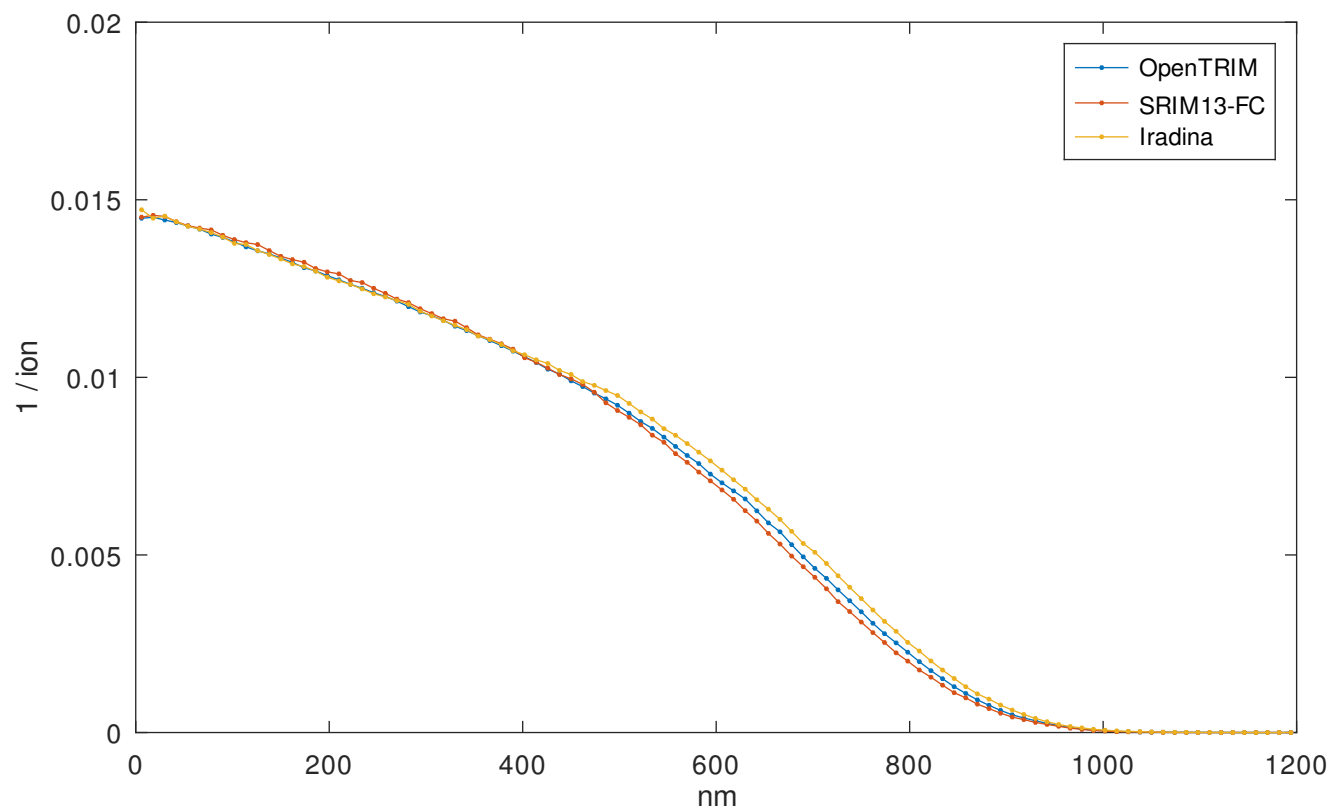
Ionization fraction  $E_I/E_0$  by Fe ion



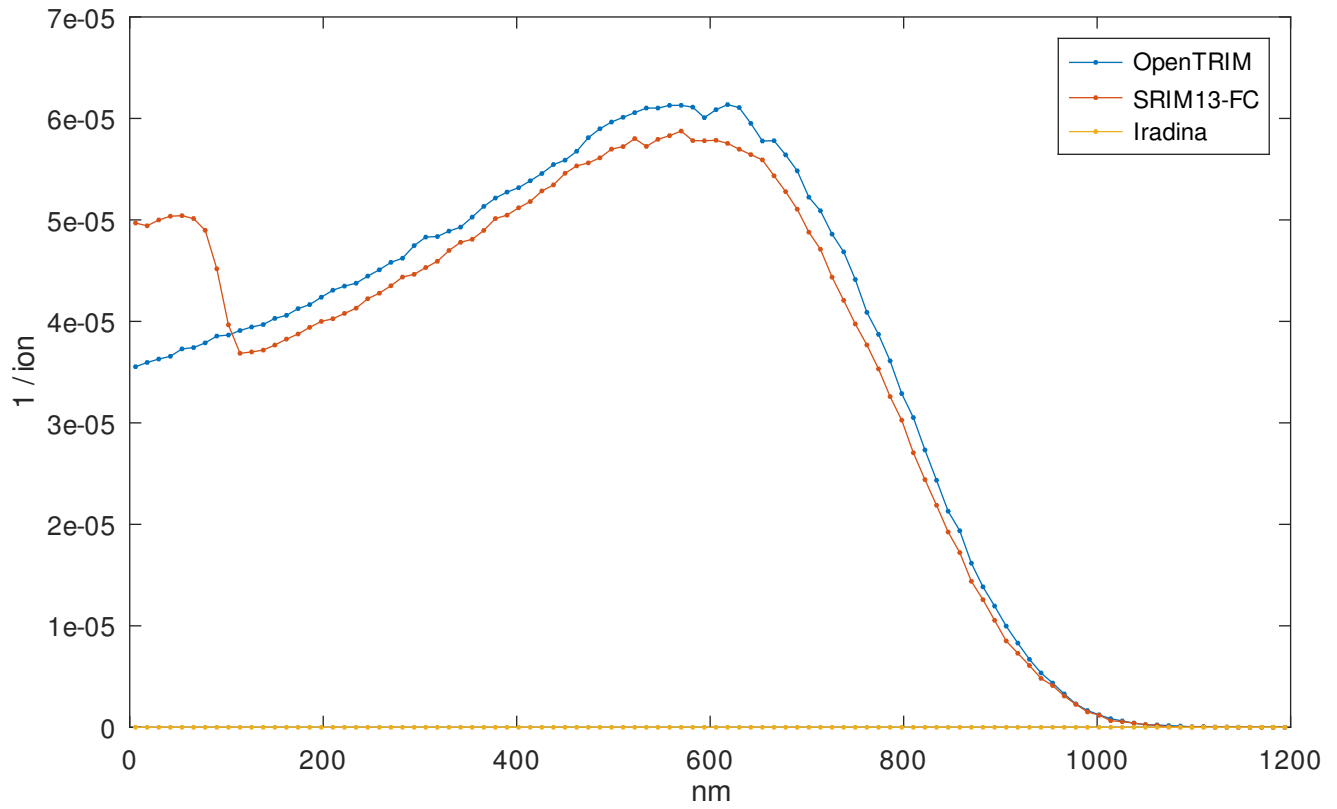
Ionization fraction  $E_I/E_0$  by recoils



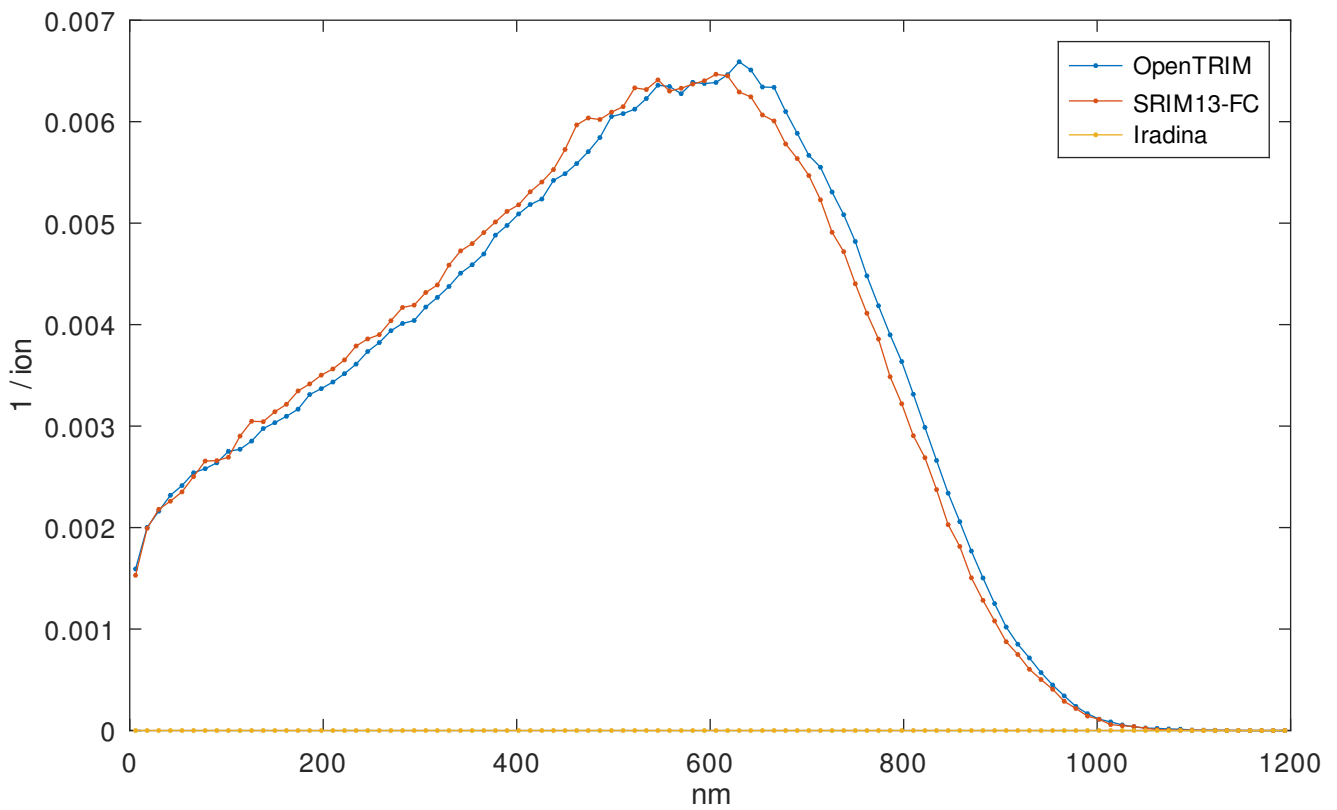
Total Ionization fraction  $E_I/E_0$



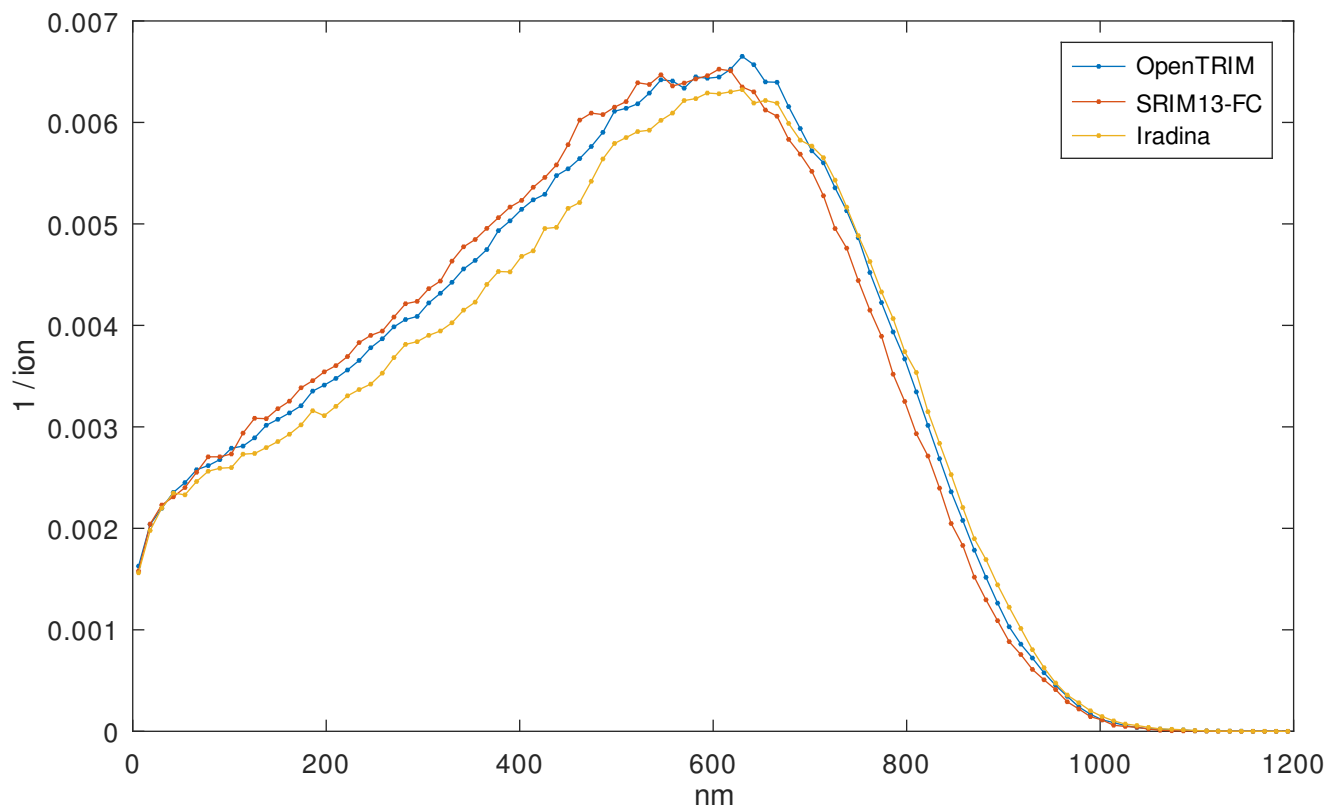
Phonon energy fraction  $E_{Ph}/E_0$  by Fe ion



Phonon energy fraction  $E_{Ph}/E_0$  by recoils



Total Phonon energy fraction  $E_{Ph}/E_0$



Total fractional energy deposition  $(E_I + E_{Ph})/E_0$

