

v.16.11.12
01/21/23

Options of Fragment Production in Material (wedge)

Dimension of distributions used for fragment production calculations in Material or Wedge

Use fragments produced in Material (Wedge) for fragment production in the following Material or Wedge with the "Calculate fragment production" option turned on

Method to calculate kinematic of fragment produced in Material or Wedge

Rate Threshold for the parent-daughter link: 1e-05 pps

ACCURATE: 16 Yes "Distribution"

FAST: 8 No "Gaussian"

For High Z-beams use:
 * "fast" method,
 * increase the rate threshold,
 * turn off option using fragments production in proceedings material
 "Dispersion" (special case)

MC mode uses only "Dispersion" method

Buttons: set all to "Accurate", set all to "Fast"

Calculation Rectangle of fragments produced in Material

"DAUGHTER region" Z: 7 N: N

first corner=> 1H min: 1 0
 second corner=> 238U max: 92 146

Buttons: Show detail statistics of fragment production in Materials (Wedges), Show the statistics window during calculations, Make default, OK, Cancel, Help

Statistics: Fragment Production in Material (Wedge)

Secondary target: #1: PS_wdg

Number of parents: 2606

Number of daughters: 1149

Number of links: 217145

Total intensity of parent nuclei before the secondary target: 1.19e+04 pps

Total intensity of parent nuclei (with links) before the ST: 1.19e+04 pps

Total intensity of daughter nuclei after the secondary target: 1.22e+02 pps

Buttons: Quit

Please use this option in the "uranium" case and production in materials to help with diagnostics

Projectile	238 U 92+	AF Low 1558
180 MeV/u	5 kW	AF Mid 2226
Fragment	82 Zn 30+.. 30+	AF High 2955
EERs: ²³⁷ U(41) ²³² Th(136) ²²⁰ At(479)		
Target	¹² C 1.2 mm	

Test	Settings of Fragment production in material				Statistics of Fragment production in material			
	threshold, pps	NP	method	RAM, GB	parents	daughters	links	daughter rate, pps
1	1E-10	16	Distr	2.1	4325	1837	1689903	1.23E+02
2	1E-10	8	Gauss	0.7	4296	1837	1689298	1.23E+02
3	1E-05	8	Gauss	0.3	2606	1146	217145	1.22E+02
4	1E-05	8	Distr	0.46	2606	1149	217145	1.22E+02

For the fission case it is recommended to use

Threshold : 1e-3
 NP: 8
 Method: Distr

The code has been updated to interpretate correctly the “Fragment Production in Material” in the deposition and rate analysis

Power deposition in blocks and rate analysis: c_PSk3_CB2_fission_82Zn_step5a.lpp

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2	Stripper	0	1.4e+12	0	1.57e+10	0	1.42e+12	0
3	dummy	0	1.4e+12	0	1.57e+10	0	1.42e+12	0
4	shield	0	1.4e+12	1e+10	5.68e+09	1e+10	1.41e+12	0
5	rotate_PS	0	1.4e+12	0	5.68e+09	0	1.41e+12	0
6	BTS01A	0	1.4e+12	0	5.68e+09	0	1.41e+12	0
7	BTS01B	0	1.4e+12	0	5.68e+09	0	1.41e+12	0
8	Beam_Dump	1.4e+12	5.944	3.57e+09	2.11e+09	1.4e+12	2.11e+09	0
9	Frag_Catchers	5.944	0	0	2.11e+09	5.944	2.11e+09	0
10	BTS01C	0	0	0	2.11e+09	0	2.11e+09	0
11	PS_Mom_slits	0	0	2.11e+09	5312.007	2.11e+09	5312.007	0
12	PS_wdg	0	0	111.143	5200.864	111.143	5200.864	0
13	BTS02	0	0	174.558	4905.738	174.558	4905.738	+120.567
14	BTS03	0	0	0	4905.738	0	4905.738	0
15	PS_FP_slit	0	0	4211.981	693.757	4211.981	693.757	0
16	unrotate_PS	0	0	0	693.757	0	693.757	0
17	correction_matrix	0	0	0	693.757	0	693.757	0
18	BTS05	0	0	0.02	693.738	0.02	693.738	0
19	DB2_slits	0	0	12.306	681.431	12.306	681.431	0
20	DB2_wdg	0	0	0	681.431	0	681.431	0
21	BTS06	0	0	10.063	671.369	10.063	671.369	0
22	DB3_PPAC1	0	0	0.038	671.33	0.038	671.33	0
23	DB3_slits	0	0	0.019	671.311	0.019	671.311	0
24	DB3_wdg	0	0	0	671.311	0	671.311	0
25	DB3_PPAC2	0	0	0.038	671.273	0.038	671.273	0
26	DB3_SCI	0	0	2.781	668.492	2.781	668.492	0
27	BTS07	0	0	7.882	660.61	7.882	660.61	0
28	DB4_slits	0	0	0	660.61	0	660.61	0
29	BTS08	0	0	3.715	656.895	3.715	656.895	0
30	DB5_slits	0	0	1.72e-05	656.895	1.72e-05	656.895	0
31	DB5_PIN	0	0	4.811	652.085	4.811	652.085	0
32	DB5_TKE_SCI	0	0	652.085	0	652.085	0	0
Total:		1.46e+12		1.57e+10		1.47e+12		7.38e+11

Due to reactions in wedge

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//-----
// 16.11.2    01/15/23
// crash in Radiation Calculator
// issue in GetHalfLifeForRadiationDecay -> min ValueErr
//-----
// 16.11.4    01/18/23
// correction in SElement : use for min separation energy only enable channels
//-----
// 16.11.5    01/19/23
//Fixed: bug in atima for energy loss higher than 110 -- crash
// precalculated_lindhard, precalculated_lindhard_X
//-----
// 16.11.6    01/19/23
//Fixed: bug in atima for energy loss higher than 110 -- crash
//void global_eqdist(int zp,double ein,int zt,double *f){
//-----
// 16.11.7    01/19/23
// new class TSecTarDebugDlg to plot statistics during calculations
// modification in TSecondaryTargetDlg
// modification in s_ST_option to add showDebug value

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//-----
// 16.11.10   01/19/23
// modification due to reaction in materials in void Ccalc::CalcPowerDeposition(double CS_NAG)
//-----
// 16.11.11   01/19/23
// modification due to energy loss in void Ccalc::CalcPowerDeposition(double CS_NAG)
//-----
// 16.11.12   01/21/23
// modification due to reaction loss in materials in void Ccalc::CalcPowerDeposition(double CS_NAG)
// Power Deposition can be used now for fragments produced in materials

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