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 RR_UNC - Calculate uncertainties in reaction rates
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 Andrej Trkov, Jozef Stefan Institute, Ljubljana, Slovenia
                  Version Jul. 2019
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 Reference x.s. file      :
..\IRDFF-II.g725
 Source spectrum file     :
..\IRDFF-II_sp.g
 Reaction rate integ.flag :      1
 Reaction rate norm. flag :      1

 Spectrum MAT No.         :   9910
 Spectrum Integral            :  1.800E+15
 Spectrum average energy [eV] :  3.999E+07
 Spectrum peak energy    [eV] :  5.899E+07
 Reaction rate RR = spectrum integral

                                                                  Unc.    Unc.    Unc.
   No.  Mat.     MT    E(50%)        <RR> +/-  Unc               x.s.    Sp.     Total
                       [MeV]              [mb]                    [%]     [%]     [%]
 ----- ------ ------ ------- ------------------------          ------ ------ ------
     1   3000      1  34.3789 1.2527E+18 +/- 0.000E+00           0.00   0.00   0.00
     2   3000      2   35.408 1.0415E+18 +/- 0.000E+00           0.00   0.00   0.00
     3   3000    205  22.8331 1.2091E+17 +/- 2.358E+16          19.50   0.00  19.50
     4   3000    207   32.027 2.5974E+17 +/- 5.385E+16          20.73   0.00  20.73
     5   3006      1  30.6734 9.3166E+17 +/- 0.000E+00           0.00   0.00   0.00
     6   3006      2  34.8278 7.8697E+17 +/- 0.000E+00           0.00   0.00   0.00
     7   3006    105   16.313 1.2545E+16 +/- 2.756E+14           2.20   0.00   2.20
     8   3006    205   16.313 1.2545E+16 +/- 2.756E+14           2.20   0.00   2.20
     9   3006    207  32.1227 4.6294E+17 +/- 7.005E+16          15.13   0.00  15.13
    10   3007      1  35.5588 1.4679E+18 +/- 0.000E+00           0.00   0.00   0.00
    11   3007      2  35.4423 1.0624E+18 +/- 0.000E+00           0.00   0.00   0.00
    12   3007    205  22.8802 1.2981E+17 +/- 2.552E+16          19.66   0.00  19.66
    13   3007    207  32.0131 2.4305E+17 +/- 5.793E+16          23.84   0.00  23.84
    14   5000      1  38.1026 1.8383E+18 +/- 0.000E+00           0.00   0.00   0.00
    15   5000      2  38.0264 1.1770E+18 +/- 0.000E+00           0.00   0.00   0.00
    16   5000    101  21.1177 3.0451E+16 +/- 0.000E+00           0.00   0.00   0.00
    17   5000    205  25.1352 1.7066E+16 +/- 3.639E+15          21.32   0.00  21.32
    18   5000    207  37.8868 4.4375E+17 +/- 7.056E+16          15.90   0.00  15.90
    19   5010      1  37.9803 1.8737E+18 +/- 0.000E+00           0.00   0.00   0.00
    20   5010      2  38.3601 1.2987E+18 +/- 0.000E+00           0.00   0.00   0.00
    21   5010    101  25.4726 1.1513E+17 +/- 0.000E+00           0.00   0.00   0.00
    22   5010    107  15.6214 2.0062E+16 +/- 4.455E+15          22.20   0.00  22.20
    23   5010    205  21.1815 4.2532E+16 +/- 6.606E+15          15.53   0.00  15.53
    24   5010    207  37.2497 8.1980E+17 +/- 1.460E+17          17.81   0.00  17.81
    25   5010    800  9.61289 8.4008E+15 +/- 2.635E+15          31.37   0.00  31.37
    26   5010    801  18.1003 1.1662E+16 +/- 3.620E+15          31.05   0.00  31.05
    27   5011      1  37.9099 1.8078E+18 +/- 0.000E+00           0.00   0.00   0.00
    28   5011      2  37.9033 1.1436E+18 +/- 0.000E+00           0.00   0.00   0.00
    29   5011    205  28.6134 1.0739E+16 +/- 4.280E+15          39.86   0.00  39.86
    30   5011    207  38.2508 3.5033E+17 +/- 8.030E+16          22.92   0.00  22.92
    31   9019     16  32.6667 5.1221E+16 +/- 3.011E+15           5.88   0.00   5.88
    32  11023      1  40.3795 2.8839E+18 +/- 0.000E+00           0.00   0.00   0.00
    33  11023      2   42.026 1.9240E+18 +/- 0.000E+00           0.00   0.00   0.00
    34  11023     16  30.1493 7.2430E+16 +/- 4.931E+15           6.81   0.00   6.81
    35  11023    102  17.8349 5.8825E+13 +/- 4.910E+12           8.35   0.00   8.35
    36  12000  11024g 32.0539 6.6364E+16 +/- 6.140E+15           9.25   0.00   9.25
    37  12024    103  20.2716 4.8813E+16 +/- 2.646E+15           5.42   0.00   5.42
    38  13027     16  35.6392 1.3520E+17 +/- 8.914E+15           6.59   0.00   6.59
    39  13027    103  20.6746 2.5021E+16 +/- 1.331E+16          53.21   0.00  53.21
    40  13027    107  15.8254 1.9914E+16 +/- 5.763E+14           2.89   0.00   2.89
    41  13027  11024g  41.938 4.7779E+16 +/- 4.146E+16          86.77   0.00  86.77
    42  13027  13026g 34.5567 8.2634E+16 +/- 6.896E+15           8.35   0.00   8.35
    43  13027  13026m 37.2266 5.2562E+16 +/- 5.649E+15          10.75   0.00  10.75
    44  14000  13028g 21.3439 7.3404E+16 +/- 3.772E+15           5.14   0.00   5.14
    45  14028    103  17.5083 6.2597E+16 +/- 3.046E+15           4.87   0.00   4.87
    46  14029  13028g 37.5289 2.4448E+17 +/- 4.603E+16          18.83   0.00  18.83
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68	47	15031	103	27.5162	5.0756E+16	+/- 4.420E+15	8.71	0.00	8.71
69	48	16000	15032g	20.0662	8.6511E+16	+/- 5.019E+15	5.80	0.00	5.80
70	49	16032	103	17.4154	8.1384E+16	+/- 4.653E+15	5.72	0.00	5.72
71	50	21045	1	42.4853	4.1780E+18	+/- 0.000E+00	0.00	0.00	0.00
72	51	21045	2	44.0004	2.3678E+18	+/- 0.000E+00	0.00	0.00	0.00
73	52	21045	102	21.0951	3.0000E+14	+/- 3.466E+13	11.55	0.00	11.55
74	53	22000	21046g	44.6953	2.0251E+17	+/- 8.132E+16	40.16	0.00	40.16
75	54	22000	21047g	40.5462	1.8345E+17	+/- 2.402E+16	13.09	0.00	13.09
76	55	22000	21048g	36.9086	3.6062E+16	+/- 3.849E+15	10.67	0.00	10.67
77	56	22000	22045g	43.1856	2.3721E+16	+/- 1.411E+15	5.95	0.00	5.95
78	57	22046	16	34.9614	1.7672E+17	+/- 1.380E+16	7.81	0.00	7.81
79	58	22046	103	22.0251	8.3475E+16	+/- 7.033E+15	8.42	0.00	8.42
80	59	22047	103	27.0245	5.4553E+16	+/- 5.472E+15	10.03	0.00	10.03
81	60	22048	103	29.9909	2.8905E+16	+/- 3.240E+15	11.21	0.00	11.21
82	61	23051	107	23.1039	6.5460E+15	+/- 1.752E+15	26.76	0.00	26.76
83	62	23051	21048g	47.6335	2.2299E+16	+/- 6.236E+16	279.64	0.00	279.64
84	63	24000	24051g	33.1935	3.7896E+17	+/- 4.075E+16	10.75	0.00	10.75
85	64	25055	1	42.5638	4.3934E+18	+/- 0.000E+00	0.00	0.00	0.00
86	65	25055	2	44.0191	2.3893E+18	+/- 0.000E+00	0.00	0.00	0.00
87	66	25055	16	24.888	3.7210E+17	+/- 2.353E+16	6.32	0.00	6.32
88	67	25055	102	15.9572	1.4551E+14	+/- 1.703E+14	117.01	0.00	117.01
89	68	26000	24051g	49.0182	3.9860E+16	+/- 2.447E+16	61.39	0.00	61.39
90	69	26000	25054g	46.0943	2.5148E+17	+/- 9.794E+16	38.95	0.00	38.95
91	70	26000	25056g	28.7691	4.1243E+16	+/- 3.923E+15	9.51	0.00	9.51
92	71	26000	26053g	48.6266	1.0263E+16	+/- 1.633E+15	15.92	0.00	15.92
93	72	26054	1	42.4967	4.3409E+18	+/- 0.000E+00	0.00	0.00	0.00
94	73	26054	2	44.1379	2.4047E+18	+/- 0.000E+00	0.00	0.00	0.00
95	74	26054	16	39.7527	1.0020E+17	+/- 2.679E+16	26.73	0.00	26.73
96	75	26054	103	18.3458	1.1523E+17	+/- 5.793E+15	5.03	0.00	5.03
97	76	26054	107	19.4389	2.3344E+16	+/- 7.092E+15	30.38	0.00	30.38
98	77	26056	103	27.6475	4.1500E+16	+/- 4.258E+15	10.26	0.00	10.26
99	78	26058	1	42.6307	4.6366E+18	+/- 0.000E+00	0.00	0.00	0.00
100	79	26058	2	44.2598	2.5102E+18	+/- 0.000E+00	0.00	0.00	0.00
101	80	26058	102	24.1417	4.4002E+14	+/- 5.504E+13	12.51	0.00	12.51
102	81	27059	1	42.8118	4.6118E+18	+/- 0.000E+00	0.00	0.00	0.00
103	82	27059	2	44.701	2.8591E+18	+/- 0.000E+00	0.00	0.00	0.00
104	83	27059	16	29.0213	4.1024E+17	+/- 5.030E+16	12.26	0.00	12.26
105	84	27059	17	38.2742	2.5415E+17	+/- 1.180E+16	4.64	0.00	4.64
106	85	27059	102	16.3883	2.5075E+14	+/- 1.961E+13	7.82	0.00	7.82
107	86	27059	103	29.8595	2.5914E+16	+/- 1.959E+15	7.56	0.00	7.56
108	87	27059	107	18.1079	6.3880E+15	+/- 9.059E+14	14.18	0.00	14.18
109	88	27059	25056g	48.0932	2.4480E+16	+/- 4.648E+16	189.85	0.00	189.85
110	89	28000	27058g	35.3084	1.4796E+17	+/- 3.171E+16	21.43	0.00	21.43
111	90	28000	27060g	36.3516	1.9146E+16	+/- 3.928E+15	20.52	0.00	20.52
112	91	28000	28057g	32.7128	4.0019E+16	+/- 2.500E+15	6.25	0.00	6.25
113	92	28058	16	32.2705	5.7504E+16	+/- 3.670E+15	6.38	0.00	6.38
114	93	28058	103	14.9898	1.1304E+17	+/- 6.160E+15	5.45	0.00	5.45
115	94	28060	103	22.8573	3.9251E+16	+/- 3.784E+15	9.64	0.00	9.64
116	95	29000	27060g	48.9097	4.3834E+16	+/- 3.500E+16	79.85	0.00	79.85
117	96	29000	29062g	35.2598	3.1003E+17	+/- 2.685E+16	8.66	0.00	8.66
118	97	29000	29064g	21.4274	9.6182E+16	+/- 6.363E+15	6.62	0.00	6.62
119	98	29063	1	42.6496	4.7582E+18	+/- 0.000E+00	0.00	0.00	0.00
120	99	29063	2	44.6179	2.5254E+18	+/- 0.000E+00	0.00	0.00	0.00
121	100	29063	16	30.2829	3.8024E+17	+/- 3.835E+16	10.09	0.00	10.09
122	101	29063	102	25.6242	1.6275E+15	+/- 2.005E+14	12.32	0.00	12.32
123	102	29063	107	16.3819	8.2052E+15	+/- 1.214E+15	14.79	0.00	14.79
124	103	29065	16	21.409	3.0812E+17	+/- 2.062E+16	6.69	0.00	6.69
125	104	30000	29064g	44.1852	1.0801E+17	+/- 3.303E+16	30.58	0.00	30.58
126	105	30000	29067g	38.9154	1.6946E+16	+/- 2.978E+15	17.57	0.00	17.57
127	106	30064	103	20.8271	6.3796E+16	+/- 3.737E+15	5.86	0.00	5.86
128	107	30067	103	30.0693	2.5406E+16	+/- 3.408E+15	13.42	0.00	13.42
129	108	30068	1	42.717	4.9720E+18	+/- 0.000E+00	0.00	0.00	0.00
130	109	30068	2	44.5424	2.7765E+18	+/- 0.000E+00	0.00	0.00	0.00
131	110	30068	29067g	39.4745	8.6284E+16	+/- 1.612E+16	18.69	0.00	18.69
132	111	33075	16	28.4923	5.4419E+17	+/- 4.864E+16	8.94	0.00	8.94
133	112	39089	16	25.7515	5.5817E+17	+/- 2.308E+16	4.14	0.00	4.14
134	113	40000	40089g	36.4772	4.9180E+17	+/- 4.268E+16	8.68	0.00	8.68
135	114	40090	16	31.7783	7.3617E+17	+/- 7.600E+16	10.32	0.00	10.32
136	115	41093	1	42.3986	5.6824E+18	+/- 0.000E+00	0.00	0.00	0.00

137	116	41093	2	44.0094	2.9546E+18	+/- 0.000E+00	0.00	0.00	0.00
138	117	41093	102	17.6778	3.4096E+14	+/- 1.309E+13	3.84	0.00	3.84
139	118	41093	41093m	17.6023	3.4245E+16	+/- 1.825E+15	5.33	0.00	5.33
140	119	41093	41092m	23.9393	1.5684E+17	+/- 6.123E+15	3.90	0.00	3.90
141	120	41093	41094g	17.6778	8.5149E+13	+/- 3.269E+12	3.84	0.00	3.84
142	121	41093	41094m	17.6778	2.5581E+14	+/- 9.820E+12	3.84	0.00	3.84
143	122	42000	41092m	45.0353	2.5158E+16	+/- 2.718E+16	108.04	0.00	108.04
144	123	42092	41092m	27.7172	3.3681E+16	+/- 1.549E+15	4.60	0.00	4.60
145	124	45103	45103m	22.7941	2.3911E+17	+/- 5.470E+15	2.29	0.00	2.29
146	125	47109	1	42.2549	6.0967E+18	+/- 0.000E+00	0.00	0.00	0.00
147	126	47109	2	43.9884	3.2473E+18	+/- 0.000E+00	0.00	0.00	0.00
148	127	47109	47110n	17.8797	1.3768E+14	+/- 1.639E+13	11.90	0.00	11.90
149	128	48000	1	42.2204	6.2991E+18	+/- 0.000E+00	0.00	0.00	0.00
150	129	48000	2	43.286	3.0941E+18	+/- 0.000E+00	0.00	0.00	0.00
151	130	48000	101	37.4585	7.2626E+16	+/- 0.000E+00	0.00	0.00	0.00
152	131	49000	49114m	27.6478	5.7279E+17	+/- 4.656E+16	8.13	0.00	8.13
153	132	49113	1	41.9009	5.8836E+18	+/- 0.000E+00	0.00	0.00	0.00
154	133	49113	2	42.835	2.7616E+18	+/- 0.000E+00	0.00	0.00	0.00
155	134	49113	102	2.45837	1.5531E+15	+/- 0.000E+00	0.00	0.00	0.00
156	135	49113	49113m	20.1585	4.6203E+16	+/- 5.995E+15	12.98	0.00	12.98
157	136	49113	49114g	2.40388	2.9143E+14	+/- 1.636E+13	5.61	0.00	5.61
158	137	49113	49114m	2.47092	1.2617E+15	+/- 7.173E+13	5.68	0.00	5.68
159	138	49115	1	42.1362	6.1148E+18	+/- 0.000E+00	0.00	0.00	0.00
160	139	49115	2	43.3805	3.3920E+18	+/- 0.000E+00	0.00	0.00	0.00
161	140	49115	102	2.80861	1.2329E+15	+/- 0.000E+00	0.00	0.00	0.00
162	141	49115	49115m	23.9364	6.4345E+16	+/- 5.050E+15	7.85	0.00	7.85
163	142	49115	49114m	27.65	5.9841E+17	+/- 4.865E+16	8.13	0.00	8.13
164	143	49115	49116g	2.58743	2.1299E+14	+/- 6.092E+12	2.86	0.00	2.86
165	144	49115	49116m	2.85844	1.0199E+15	+/- 2.960E+13	2.90	0.00	2.90
166	145	53127	16	20.6994	4.4112E+17	+/- 2.686E+16	6.09	0.00	6.09
167	146	57139	1	41.5312	6.5354E+18	+/- 0.000E+00	0.00	0.00	0.00
168	147	57139	2	42.0299	3.5745E+18	+/- 0.000E+00	0.00	0.00	0.00
169	148	57139	102	15.8624	3.5859E+14	+/- 3.059E+13	8.53	0.00	8.53
170	149	59141	16	24.7644	6.9302E+17	+/- 5.489E+16	7.92	0.00	7.92
171	150	64000	1	41.6418	7.7087E+18	+/- 0.000E+00	0.00	0.00	0.00
172	151	64000	2	42.4965	3.8232E+18	+/- 0.000E+00	0.00	0.00	0.00
173	152	64000	101	37.6464	2.6174E+16	+/- 0.000E+00	0.00	0.00	0.00
174	153	69169	16	21.8652	5.7974E+17	+/- 5.004E+16	8.63	0.00	8.63
175	154	69169	17	31.5448	8.6090E+17	+/- 7.425E+16	8.62	0.00	8.62
176	155	73181	1	41.2706	8.2759E+18	+/- 0.000E+00	0.00	0.00	0.00
177	156	73181	2	41.2661	4.3684E+18	+/- 0.000E+00	0.00	0.00	0.00
178	157	73181	102	4.33316	7.3440E+14	+/- 2.938E+13	4.00	0.00	4.00
179	158	74186	1	40.9787	7.9397E+18	+/- 0.000E+00	0.00	0.00	0.00
180	159	74186	2	40.8385	4.0125E+18	+/- 0.000E+00	0.00	0.00	0.00
181	160	74186	102	7.58522	4.9254E+14	+/- 4.199E+13	8.53	0.00	8.53
182	161	79197	1	40.9484	8.1638E+18	+/- 0.000E+00	0.00	0.00	0.00
183	162	79197	2	39.8963	3.6128E+18	+/- 0.000E+00	0.00	0.00	0.00
184	163	79197	16	26.0206	7.0011E+17	+/- 2.949E+16	4.21	0.00	4.21
185	164	79197	102	3.6295	5.7622E+14	+/- 1.542E+13	2.68	0.00	2.68
186	165	80199	80199m	20.9472	1.1823E+17	+/- 2.533E+15	2.14	0.00	2.14
187	166	82204	82204m	23.6774	4.3591E+16	+/- 8.533E+14	1.96	0.00	1.96
188	167	83209	16	20.3436	5.9996E+17	+/- 2.872E+16	4.79	0.00	4.79
189	168	83209	17	29.0808	8.5115E+17	+/- 4.572E+16	5.37	0.00	5.37
190	169	83209	37	36.4233	7.1093E+17	+/- 4.786E+16	6.73	0.00	6.73
191	170	83209	152	45.7364	6.7656E+17	+/- 4.714E+16	6.97	0.00	6.97
192	171	90232	1	40.6768	9.2844E+18	+/- 0.000E+00	0.00	0.00	0.00
193	172	90232	2	40.0065	4.3536E+18	+/- 0.000E+00	0.00	0.00	0.00
194	173	90232	18	44.8423	1.4525E+18	+/- 3.017E+16	2.08	0.00	2.08
195	174	90232	102	2.49474	5.8369E+14	+/- 4.712E+13	8.07	0.00	8.07
196	175	92235	1	40.4294	9.2080E+18	+/- 0.000E+00	0.00	0.00	0.00
197	176	92235	18	41.7641	3.5344E+18	+/- 3.753E+16	1.06	0.00	1.06
198	177	92238	1	40.6184	9.4430E+18	+/- 0.000E+00	0.00	0.00	0.00
199	178	92238	2	39.0445	4.3825E+18	+/- 0.000E+00	0.00	0.00	0.00
200	179	92238	16	22.3303	2.8917E+17	+/- 2.213E+16	7.65	0.00	7.65
201	180	92238	18	43.1556	2.8476E+18	+/- 3.314E+16	1.16	0.00	1.16
202	181	92238	102	3.06405	4.9434E+14	+/- 4.087E+13	8.27	0.00	8.27
203	182	93237	1	40.5351	9.3619E+18	+/- 0.000E+00	0.00	0.00	0.00
204	183	93237	2	40.2481	4.8845E+18	+/- 0.000E+00	0.00	0.00	0.00
205	184	93237	18	41.5407	3.6049E+18	+/- 4.301E+16	1.19	0.00	1.19

```
    185 94239      1  40.1164 9.1978E+18 +/- 0.000E+00     0.00   0.00   0.00
    186 94239      2   39.707 4.2765E+18 +/- 0.000E+00     0.00   0.00   0.00
    187 94239     18  41.4743 3.9298E+18 +/- 4.231E+16     1.08   0.00   1.08
    188 95241      1  40.4981 9.4645E+18 +/- 0.000E+00     0.00   0.00   0.00
    189 95241      2  39.6731 4.5348E+18 +/- 0.000E+00     0.00   0.00   0.00
    190 95241     18  41.1936 3.8037E+18 +/- 4.905E+16     1.29   0.00   1.29
```