

## Present Status of JENDL Project

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## 1. JENDL-3 General Purpose File and FP Nuclear Data Library

The JENDL-3 General Purpose File was released in December 1989, and its summary documentation was published as JAERI 1319. In 1990, some trivial errors were modified and JENDL-3 revision 1 was released in December 1990. At the same time, JENDL-3 FP Nuclear Data Library was released, which contained the evaluated data for 172 nuclei from  $^{75}\text{As}$  to  $^{159}\text{Tb}$ . As a result, JENDL-3 stores the data for 324 nuclei. The total number of records in the ENDF-5 format is about 980,000.

In the FP Nuclear Data Library, the data are given, in the energy range from  $10^{-5}$  eV to 20 MeV, for the total, elastic and inelastic scattering and capture cross sections as well as threshold reaction cross sections. An attached table is a list of nuclei in JENDL-3 FP Nuclear Data Library.

In the last December, the specialists' Meeting on Nuclear Data for Fusion Neutronics was held in JAERI. The results of benchmark tests for important data were reported and confirmed that JENDL-3 was applicable to the fusion neutronics. Proceedings of the meeting have been published as JAERI-M 91-062.

## 2. JENDL Special Purpose Files

Several kinds of JENDL special purpose files are under preparation in cooperation with working groups of Japanese Nuclear Data Committee. The following four files are expected to be completed in 1991.

Dosimetry File

Cross sections and covariance matrices of 61 dosimetry reactions are stored in a group-wise file, whose format is the same as IRDF, and in a point-wise file. The cross section data were mainly taken from JENDL-3 and the covariance matrices from IRDF-85.

( $\alpha, n$ ) Reaction Data File

Data are given for 11 elements (Li, Be, B, C, N, O, F, Na, Al, Si

and Cu) on the basis of available experimental data and theoretical calculations.

#### Activation Cross Section File

About 1000 reaction cross sections have been evaluated for important elements. In this evaluation work, efforts are concentrated to make accurate evaluation for selected important reactions. Theoretical calculation of the cross sections are made by means of SINCROS which consists of DWUCK-4 and GNASH modified by Prof. Yamamuro. The data for many reactions are newly evaluated and are different from JENDL-3.

#### Gas Production Cross Section File

The data of the p, d, t,  $^3\text{He}$  and  $\alpha$  production cross sections have been compiled for  $^6\text{Li}$ ,  $^7\text{Li}$ ,  $^9\text{Be}$ ,  $^{10}\text{B}$ ,  $^{11}\text{B}$ ,  $^{12}\text{C}$ , N,  $^{19}\text{F}$ ,  $^{27}\text{Al}$ , Si, Ti,  $^{51}\text{V}$ , Cr,  $^{55}\text{Mn}$ , Fe, Ni,  $^{59}\text{Co}$ , Cu, Zr, Nb, Mo,  $^{75}\text{As}$  and Se. All the data were taken taken from JENDL-3.

#### Other Special Purpose Files

We are also making the following files.

Decay data file: Data will be taken from ENSDF and/or JNDC FP Decay Data File version 2.

KERMA factor and DPA cross section file: The format of the file has been determined. Data will be evaluated in the energy range up to 50 MeV for important light and structural materials.

File for fusion neutronics: This file will be compiled in the ENDF-6 format in order to store double differential cross section data for light and structural materials.

High energy neutron data file: Evaluation of cross sections up to 50 MeV is being made for 19 light and structural materials. They are required for the ESNIT project promoted in JAERI.

Charged particle data file: The first target of this file will be data for accelerator shielding. Evaluation work has not yet started.

Actinide cross section file: The data for about 70 nuclei are required for estimation of generation and depletion of actinides. The present JENDL-3 covers about 70 % of this request.

JENDL-3 FISSION PRODUCT NUCLIDE DATA  
1990-12

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NUCLIDE	MAT	RECORDS	NUCLIDE	MAT	RECORDS
33-AS- 75	3301	2263	37-RB- 85	3701	1916
34-SE- 74	3401	1482	37-RB- 87	3702	1617
34-SE- 76	3402	2560	38-SR- 86	3801	1727
34-SE- 77	3403	2782	38-SR- 87	3802	1702
34-SE- 78	3404	2075	38-SR- 88	3803	2094
34-SE- 79	3405	2928	38-SR- 89	3804	1887
34-SE- 80	3406	2462	38-SR- 90	3805	1487
34-SE- 82	3407	1418	39-Y - 89	3901	1921
35-BR- 79	3501	3247	39-Y - 91	3902	2907
35-BR- 81	3502	2932	40-ZR- 90	4001	1807
36-KR- 78	3601	2585	40-ZR- 91	4002	1972
36-KR- 80	3602	2519	40-ZR- 92	4003	2116
36-KR- 82	3603	1856	40-ZR- 93	4004	2157
36-KR- 83	3604	1915	40-ZR- 94	4005	1837
36-KR- 84	3605	1849	40-ZR- 95	4006	2561
36-KR- 85	3606	1831	40-ZR- 96	4007	1428
36-KR- 86	3607	1660			

TOTAL 69500 RECORDS

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NUCLIDE	MAT	RECORDS	NUCLIDE	MAT	RECORDS
41-NB- 93	4101	6502	44-RU-100	4404	2260
41-NB- 94	4102	3161	44-RU-101	4405	2669
41-NB- 95	4103	2627	44-RU-102	4406	2288
42-MO- 92	4201	1931	44-RU-103	4407	2105
42-MO- 94	4202	1864	44-RU-104	4408	1691
42-MO- 95	4203	2454	44-RU-106	4409	1481
42-MO- 96	4204	1983	45-RH-103	4501	2402
42-MO- 97	4205	2528	45-RH-105	4502	2345
42-MO- 98	4206	2256	46-PD-102	4601	2245
42-MO- 99	4207	2359	46-PD-104	4602	1901
42-MO-100	4208	2101	46-PD-105	4603	3026
43-TC- 99	4301	2450	46-PD-106	4604	2508
44-RU- 96	4401	2045	46-PD-107	4605	2682
44-RU- 98	4402	2080	46-PD-108	4606	2264
44-RU- 99	4403	2172	46-PD-110	4607	1910

TOTAL 71890 RECORDS

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NUCLIDE	MAT	RECORDS	NUCLIDE	MAT	RECORDS
47-AG-107	4701	6932	50-SN-112	5001	2382
47-AG-109	4702	6651	50-SN-114	5002	2474
47-AG-110M	4703	3318	50-SN-115	5003	2175
48-CD-106	4801	2080	50-SN-116	5004	1740
48-CD-108	4802	2815	50-SN-117	5005	2013
48-CD-110	4803	2469	50-SN-118	5006	1606
48-CD-111	4804	2149	50-SN-119	5007	2370
48-CD-112	4805	1951	50-SN-120	5008	2151
48-CD-113	4806	2209	50-SN-122	5009	1600
48-CD-114	4807	1777	50-SN-123	5010	2088
48-CD-116	4808	1610	50-SN-124	5011	2078
49-IN-113	4901	2771	50-SN-126	5012	1501
49-IN-115	4902	2429			

TOTAL 63339 RECORDS

## JENDL 310

NUCLIDE	MAT	RECORDS
51-SB-121	5101	2254
51-SB-123	5102	2083
51-SB-124	5103	1986
51-SB-125	5104	2962
52-TE-120	5201	1878
52-TE-122	5202	1621
52-TE-123	5203	2392
52-TE-124	5204	2057
52-TE-125	5205	2428
52-TE-126	5206	1918
52-TE-127M	5207	2532
52-TE-128	5208	1742
52-TE-129M	5209	2782
52-TE-130	5210	1596
53-I -127	5301	2558
53-I -129	5302	2591
53-I -131	5303	2428

TOTAL 72163 RECORDS

## JENDL 311

NUCLIDE	MAT	RECORDS
56-BA-130	5601	1958
56-BA-132	5602	2050
56-BA-134	5603	2166
56-BA-135	5604	2190
56-BA-136	5605	1950
56-BA-137	5606	1949
56-BA-138	5607	2259
56-BA-140	5608	1876
57-LA-138	5701	2561
57-LA-139	5702	2280
58-CE-140	5801	2552
58-CE-141	5802	3188
58-CE-142	5803	2136
58-CE-144	5804	1753

TOTAL 63282 RECORDS

## JENDL 312

NUCLIDE	MAT	RECORDS
62-SM-144	6201	3023
62-SM-147	6202	2709
62-SM-148	6203	2120
62-SM-149	6204	2585
62-SM-150	6205	2534
62-SM-151	6206	3022
62-SM-152	6207	2102
62-SM-153	6208	3330
62-SM-154	6209	2705
63-EU-151	6301	4574
63-EU-152	6302	2564
63-EU-153	6303	4655

TOTAL 66653 RECORDS

NUCLIDE	MAT	RECORDS
54-XE-124	5401	2334
54-XE-126	5402	2083
54-XE-128	5403	2398
54-XE-129	5404	2398
54-XE-130	5405	1548
54-XE-131	5406	2042
54-XE-132	5407	1836
54-XE-133	5408	2287
54-XE-134	5409	1621
54-XE-135	5410	2200
54-XE-136	5411	1847
55-CS-133	5501	2655
55-CS-134	5502	3305
55-CS-135	5503	2033
55-CS-136	5504	1769
55-CS-137	5505	1999

NUCLIDE	MAT	RECORDS
59-PR-141	5901	2234
59-PR-143	5902	2404
60-ND-142	6001	2209
60-ND-143	6002	2415
60-ND-144	6003	2080
60-ND-145	6004	2792
60-ND-146	6005	2252
60-ND-147	6006	2488
60-ND-148	6007	2299
60-ND-150	6008	2287
61-PM-147	6101	2372
61-PM-148	6102	2012
61-PM-148M	6103	1914
61-PM-149	6104	2656

NUCLIDE	MAT	RECORDS
63-EU-154	6304	2277
63-EU-155	6305	2342
63-EU-156	6306	1929
64-GD-152	6401	3166
64-GD-154	6402	3065
64-GD-155	6403	3483
64-GD-156	6404	2883
64-GD-157	6405	3356
64-GD-158	6406	2754
64-GD-160	6407	2329
65-TB-159	6501	3146