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Progress Report of Nuclear Data Center of Japan Atomic Energy Agency for FY 2024

Osamu IWAMOTO
Japan Atomic Energy Agency

JAEA/NDC

- JAEA/NDC consists of 9 staffs.
  - 7 regular staffs, 1 postdoc and 1 secretaries as of April 1, 2024.
- Nuclear data measurements
  - TOF neutron cross section measurement with ANNRI in MLF at J-PARC
  - Activation cross section measurement at KUR and JRR-3
- Nuclear data libraries
  - JENDL-5 (released in 2021): general purpose file
  - 16 updated files have been released for correction of errors in JENDL-5

Neutron TOF C.S. measurements

- Casanovas-Hoste A. et al., "Shedding light on the origin of 204Pb, the heaviest s-process; Only isotope in the solar system," Physical Review Letters, 133, 052702_1 (2024)
- Rovira Leveroni G. et al., "Neutron capture cross section measurement of 129I and 127I using the NaI(Tl) spectrometer of the ANNRI beamline at J-PARC," European Physical Journal A, 60, 120_1 (2024)
- Kimura Atsushi et al., "Total and double differential scattering cross-section measurements of isotropic graphite," EPJ Web of Conferences, 294, 01002_1 (2024)
- Rovira Leveroni G. et al., "241Am neutron capture cross section measurement using the NaI(Tl) spectrometer of the ANNRI beamline of J-PARC," Journal of Nuclear Science and Technology, 61, 459 (2024)
- Endo Shunsuke et al., "Measurements of the neutron total and capture cross sections and derivation of the resonance parameters of 181Ta," Nuclear Science and Engineering, 198, 786 (2024)
- Amaducci S. et al., "Measurement of the 140Ce(n, g) cross section at n_TOF and its astrophysical implications for the chemical evolution of the universe," Physical Review Letters, 132, 122701_1 (2024)
- Katabuchi Tatsuya et al., "Measurement of the neutron capture cross section of 185Re in the keV energy region," Journal of Nuclear Science and Technology, 61, 224 (2024)

Neutron activation measurements

- Nakamura Shoji et al., "Measurements of neutron capture cross-section for nuclides of interest in decommissioning (II); 58Fe(n,g)59Fe," Journal of Nuclear Science and Technology, 62, 300 (2025)
- Nakamura Shoji et al., "Measurements of neutron capture cross-section for nuclides of interest in decommissioning (III); 170Er(n,g)171Er and 180Hf(n,g)181Hf reactions," Journal of Nuclear Science and Technology, null, 14 (2025)
- Nakamura Shoji et al., "Measurements of neutron capture cross-sections for nuclides of interest in decommissioning; 45Sc, 63Cu, 64Zn, 109Ag, and 113In," Journal of Nuclear Science and Technology, 61, 1415 (2024)

Other measurements

- Okuizumi Mao et al., "Transverse asymmetry of individual g rays in the 139La(n,g)140La reaction," Physical Review C, 111, 034611_1 (2025)
- Balibrea-Correa J. et al., "Pushing the high count rate limits of scintillation detectors for challenging neutron-capture experiments," Nuclear Instruments and Methods in Physics Research A, 1064, 169385_1 (2024)
- Endo Shunsuke et al., "Circular polarization measurement for individual gamma rays in capture reactions with intense pulsed neutrons," European Physical Journal A, 60, 166_1 (2024)
- Nakabe Rintaro et al., "High sensitivity of a future search for effects of P-odd/T-odd interactions on the 0.75 eV p-wave resonance in n+139La forward transmission determined using a pulsed neutron beam," Physical Review C, 109, L041602_1 (2024)
- Okudaira Takuya et al., "Spin dependence in the p-wave resonance of 139La+n," Physical Review C, 109, 044606_1 (2024)
- Wright T. et al., "Measurement of the prompt fission g-rays from slow neutron-induced fission of 235U with STEFF," European Physical Journal A, 60, 70_1 (2024)
- Alcayne V. et al., "A Segmented Total Energy Detector (sTED) optimized for (n,g) cross-section measurements at n_TOF EAR2," Radiation Physics and Chemistry, 217, 111525_1 (2024)
- Hwang J. et al., "Production cross-sections of residual nuclides from 93Zr + p at 27 MeV/nucleon," Progress of Theoretical and Experimental Physics (Internet), 2024, 093D03_1 (2024)

Nuclear data library/evaluation

- Nguyen T. T. H. et al., "Photonuclear reaction cross-section evaluation of 181Ta and 209Bi considering experimental double differential cross-section data," EPJ Web of Conferences, 322, 10004_1 (2025)
- Nakada Hibiki et al., "Difference in peripherality of the inclusive (p, p'x) and (d, d'x) reactions and its implications for a phenomenological reaction model," Physical Review C, 110, 014616_1 (2024)
- Minato Futoshi et al., "Fission fragment yields of 235U(n_{th}, f) evaluated with the CCONE code system," Physical Review C, 110, 054311_1 (2024)
- Nakayama Shinsuke et al., "Evaluation of thermal neutron scattering law of nuclear-grade isotropic graphite," EPJ Web of Conferences, 294, 07001_1 (2024)
- Schnabel G. et al., "FENDL: A Library for fusion research and applications," Nuclear Data Sheets, 193, 1 (2024)
- Okuyama Riko et al., "EXFOR-based simultaneous evaluation for neutron-induced fission cross section of plutonium-242," Journal of Nuclear Science and Technology, 61, 57 (2024)

EXFOR compilation

entry #	reference	reaction	facility	compilation date	status
23604	JNST,59,1388,2022	Np-237$\sigma_{cap,th}$	KUR	20230623	EXFOR
23606	JNST,60,489,2023	Am-241(n,g)	J-PARC	20230628	EXFOR
23607	J,NST,60,678,2023	Gd-155,157(n,g)	J-PARC	20231208	EXFOR
23608	J,PR/C,97,034622,2018	La-139 RP	J-PARC	20231110	EXFOR
23609	J,PR/C,107,054602,2023	Xe-131 RP	J-PARC	20231110	EXFOR
23610	J,NST,60,1133,2023	Nb-93 $\sigma_{cap,th}$	KUR	20231211	Compiled
23611	J,NST,60,1361,2023	Pb-204 $\sigma_{cap,th}$	JRR-3	20231213	Compiled
23612	J,PRL,132,023402,2024	Scattering length	J-PARC	20240209	Compiled
23613	J,EPJ/A,59,288,2023	La-139(n,g),(n,tot), RP	J-PARC	20240910	Compiled
23614	J,NSE,198,786,2024	Ta-181(n,g), (n,tot), RP	J-PARC	20250216	Compiled
23615	J,EPJ/A,60,120,2024	I-127,129(n,g)	J-PARC	20241017	Compiled
23616	J,NST,61,1385,2024	Ir-193(n,g)	J-PARC	20250217	Compiled
23617	J,NST,61,1415,2024	Sc-45, Cu-63, Zn-64, Ag-109, In-113 $\sigma_{cap,th}$	KUR	20250219	Compiled
23618	J,NST,62,300,2025	Fe-58,59 $\sigma_{cap,th}$	KUR	20250221	Compiled
23619	J,NST,62,XXXX,2025	Er-170,171 Hf-180,181 $\sigma_{cap,th}$	KUR	20250225	Compiled
23620	J,NST,61,459,2024	Am-241(n,g)	J-PARC	20250605	Compiled