Technical Meeting on the International Network of Nuclear Reaction Data Centres,
4 - 7 May, 2021, Virtual

Progress Report of Nuclear Data Center of Japan Atomic Energy Agency for FY 2018 – 2020

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JAEA/NDC

- JAEA/NDC consists of 12 staffs.
  - 9 regular staffs, 1 advisor, 1 postdocs and 1 secretaries as of April 1, 2021.
- Experiments
  - TOF neutron cross section measurement with ANNRI in MLF at J-PARC
  - Activation cross section measurement at KUR
  - (n,g) and/or (n,tot) cross sections of Cs, Gd, Np, Am, Cm isotopes
- Nuclear data libraries
  - JENDL/ImPACT-2018 (released in 2019): Neutron- and proton-induced reaction data up to 200 MeV for transmutation studies of long-lived fission products.
  - JENDL/PD-2016.1 (released in 2020): Photon-induced reaction data up to 140 or 200 MeV. (revision of JENDL/PD-2016)
  - JENDL/DEU-2020 (released in 2021): Deuteron-induced reaction data up to 200 MeV.
  - JENDL-5: general purpose file under development (to be released in 2021)

Selected publication list (1)

* Experiment, Theory/Evaluation

- Thermal-neutron capture cross sections and resonance integrals of the 243Am(n,γ)244gAm and 243Am(n,γ)244m+gAm reactions, S. Nakamura et al., JNST, 58(3), 259-277 (2021).
- Evaluation of fission product yields and associated covariance matrices, K. Tsubakihara et al., JNST, 58(2), 151-165 (2021).
- Measurement of double-differential thick-target neutron yields of the C(d,n) reaction at 12, 20, and 30 MeV, M. K. A Patwary et al, JNST, 58(2), 252-258 (2021).
- Low-lying electric and magnetic dipole strengths in 207Pb, T. Shizuma et al., PR C, 103(2), 024309_1-024309_8 (2021).
- Discovery of a new low energy neutron resonance of 89Y, T. Katabuchi et al., EPJ A, 57(1), 4_1-4_4 (2021).
- Recent progress of a code system DEURACS toward deuteron nuclear data evaluation, S. Nakayama et al., EPJ Web of Conferences, 239, 03014_1-03014_4 (2020).
- Status of JENDL, O. Iwamoto et al., EPJ Web of Conferences, 239, 09002_1-09002_6 (2020).
- Evaluation of gamma-ray strength function based on measured gamma-ray pulse-height spectra in time-of-flight neutron capture experiments, N. Iwamoto et al., EPJ Web of Conferences, 239, 17016_1-17016_4 (2020).
- Fast neutron capture reaction data measurement of minor actinides for development of nuclear transmutation systems, T. Katabuchi, EPJ Web of Conferences, 239, 01044_1-01044_4 (2020).
- Toward next JENDL Fission Yield Data and Decay Data, F. Minato, EPJ Web of Conferences, 242, 05004_1-05004_6 (2020).

Selected publication list (2)

* Experiment, Theory/Evaluation

- Theoretical study of Nb isotope productions by muon capture reaction on 100Mo, M. Ciccarelli et al., PR C, 102(3), 034306_1-034306_9 (2020).
- Measurement of cesium isotopic ratio by thermal ionization mass spectrometry for neutron capture reaction studies on 135Cs, Y. Shibahara et al., Journal of Radioanalytical and Nuclear Chemistry, 325(1), 155-165 (2020).
- Measurements of thermal-neutron capture cross-section of cesium-135 by applying mass spectrometry, S. Nakamura et al., JNST, 57(4), 388-400 (2020).
- Spin-isospin properties of N = Z odd-odd nuclei from a core+pn three-body model including core excitations, F. Minato et al., EPJ A, 56(2), 45_1-45_18 (2020).
- Neutron capture cross-section measurement and resolved resonance analysis of 237Np, G. Rovira et al., JNST, 57(1), 24-39 (2020).
- JENDL/ImPACT-2018; A New nuclear data library for innovative studies on transmutation of long-lived fission products, S. Kunieda et al., JNST, 56(12), 1073-1091 (2019).
- Consistent description of light composite particle emission in deuteron-induced reactions, S. Nakayama et al., PR C, 100(4), 044603_1-044603_8 (2019).
- Statistical properties of thermal neutron capture cross sections calculated with randomly generated resonance parameters, N. Furutachi et al., PR C, 100(1), 014610_1-014610_7 (2019).
- Measurements of the 243Am neutron capture and total cross sections with ANNRI at J-PARC, A. Kimura et al., JNST, 56(6), 479-492 (2019).

Selected publication list (3)

* Experiment, Theory/Evaluation

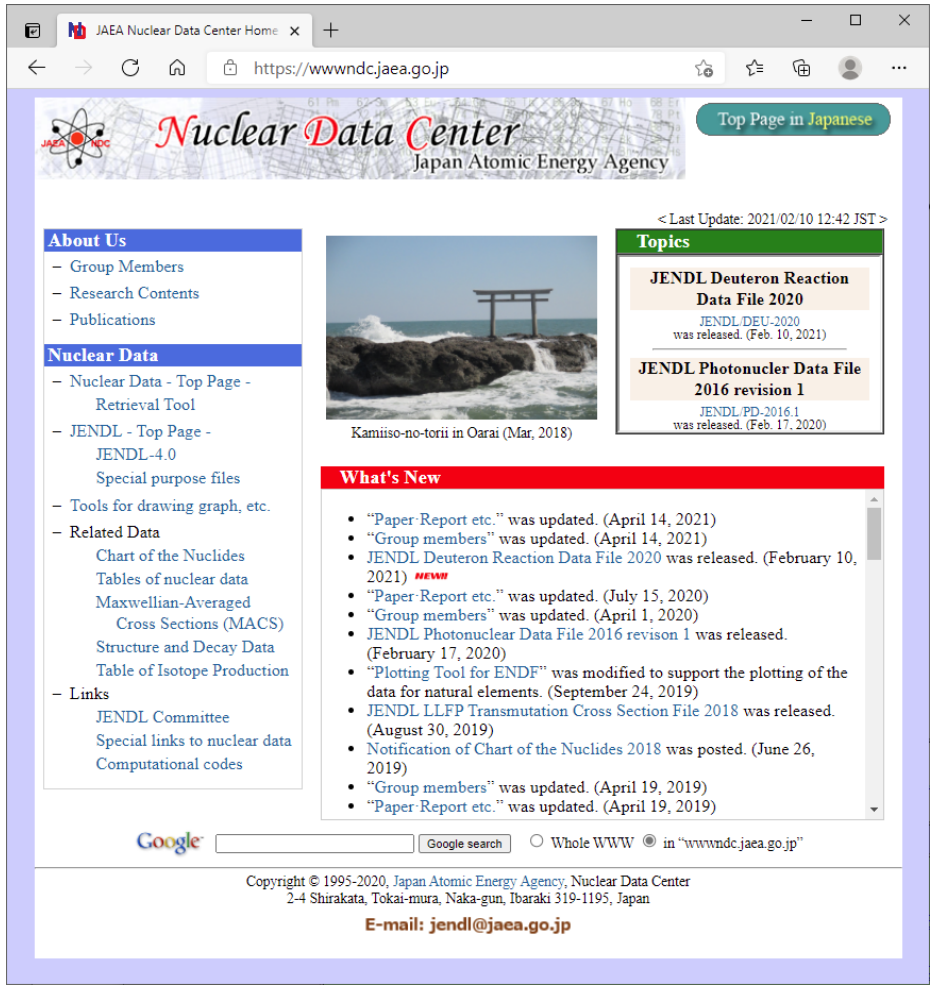
- Measurements of thermal-neutron capture cross-section and resonance integral of neptunium-237, S. Nakamura et al., JNST, 56(6), 493-502 (2019).
- Phenomenological level density model with hybrid parameterization of deformed and spherical state densities, N. Furutachi et al., JNST, 56(5), 412-424 (2019).
- Measurements of gamma-ray emission probabilities in the decay of americium-244g, S. Nakamura et al., JNST, 56(1), 123-129 (2019).
- Dipole strength distribution in 206Pb for the evaluation of the neutron capture cross section of 205Pb, T. Shizuma, PR C, 98(6), 064317_1-064317_12 (2018).
- Measurements of neutron total and capture cross sections of 241Am with ANNRI at J-PARC, K. Terada et al., JNST, 55(10), 1198-1211 (2018).
- Role of breakup processes in deuteron-induced spallation reactions at 100-200 MeV/nucleon, S. Nakayama et al., PR C, 98(4), 044606_1-044606_8 (2018).
- Neutron energy dependence of delayed neutron yields and its assessments, F. Minato, JNST, 55(9), 1054-1064 (2018).
- Theoretical calculation of neutron cross sections for 90,91,92,94,96Zr in the incident energy range between 200 keV and 20 MeV, A. Ichihara, JNST, 55(9), 1087-1098 (2018).
- Calculation of neutron cross-sections on copper-63 and -65, S. Nakayama, JNST, 55(6), 614-622 (2018).
- Evaluation of neutron capture cross section on 205Pb with photonuclear data, N. Iwamoto et al., EPJ Web of Conferences (Internet), 178, 06004_1-06004_3 (2018).

EXFOR compilation

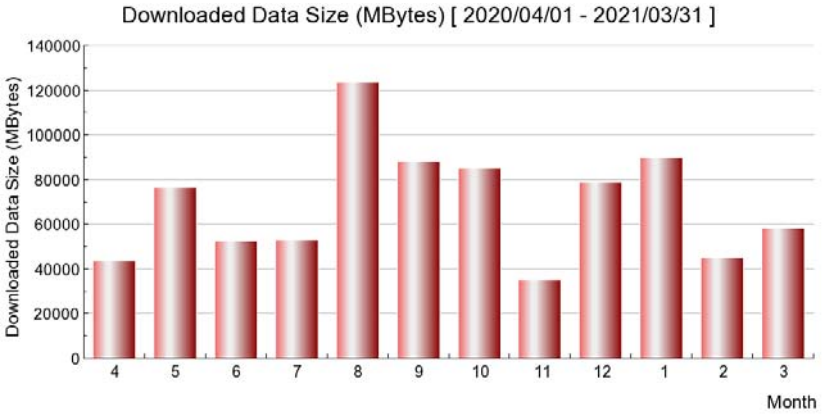
- We started to compile the data measured at J-PARC or by member of our group from 2019.
  - 2019
    - Neutron scattering from diamond@J-PARC BL10
    - Am-243(n,g), (n,tot)@J-PARC BL04
    - Np-237(n,g) @KURRI
  - 2020
    - Cs-135(n,g) @KURRI
    - 14N(n, p) 14C @J-PARC BL05

Data service by web

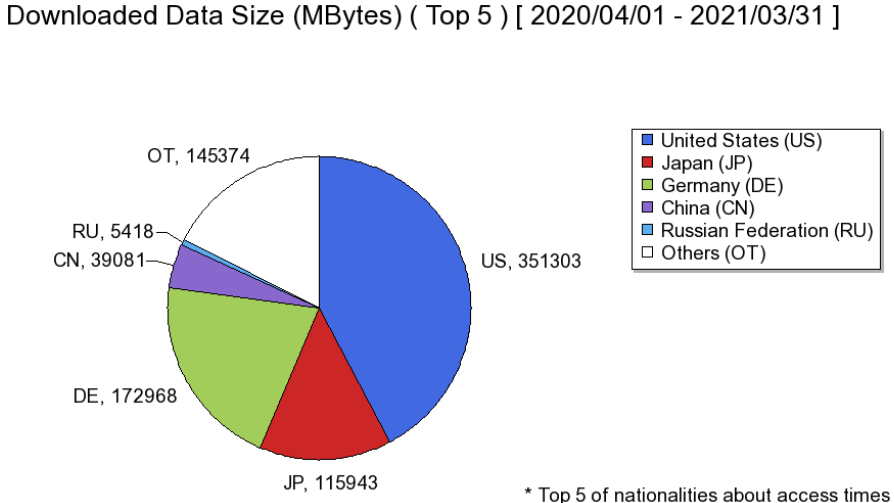
wwwndc.jaea.go.jp



Downloaded data size in FY 2020 (20 - 100 GB/month)



Dowonloaded data by countries.



* Top 5 of nationalities about access times