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Nuclear Data Newsletter

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From the Section Head

The first half of 2026 has been a productive period for the Nuclear Data Section.

Major activities included the final coordination work towards the 2026 Neutron Data Standards release, continued progress within INDEN, a meeting on Uncertainty Quantification and several Coordinated Research Projects.

An important highlight of the first half of 2026 was the International Nuclear Data Committee (INDC) meeting. The INDC met with us in Vienna to review our programme and provide strategic guidance for the coming years. The continued support and valuable recommendations of these international experts remain essential to the success of the Nuclear Data Section.

Just before that, the Technical Meeting of the International Network of Nuclear Reaction Data Centres (NRDC) was held. As usual, the meeting reviewed progress in experimental nuclear reaction data compilation of EXFOR and dissemination, and emphasized the growing importance of global collaboration in maintaining comprehensive and reliable databases.

We have also continued to invest in modernizing our nuclear data services through new dissemination tools, cloud-based infrastructure, the Nuclear Data Explorer, and increased use of artificial intelligence and machine learning techniques. These developments aim to make nuclear data more accessible and useful for our Member States and the broader scientific community.

Looking ahead, an active programme of technical meetings and research coordination activities awaits us in the second half of the year, covering topics such as ion beam analysis, nuclear level densities, and neutron standards.

Finally, I would like to thank all contributors to our databases, evaluations, coordination activities and software developments. The progress reported in this Newsletter is only possible through the dedication of colleagues in the IAEA, our international networks, and the many experts from Member States who contribute their knowledge and time to these efforts.

Arjan Koning, Section Head, Nuclear Data Section

Data Libraries News

Nuclear Reaction Data Explorer: Major Upgrade Released

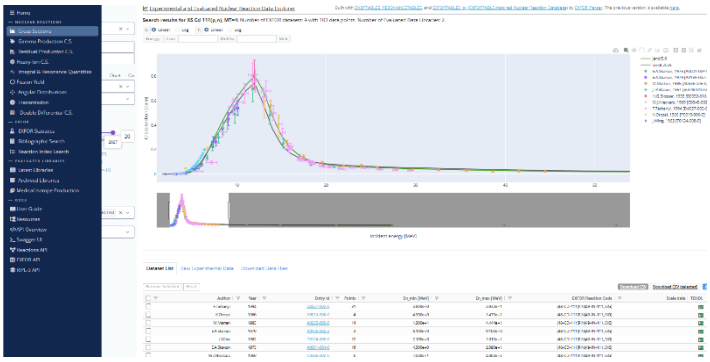
The Nuclear Data Section has deployed a major new version of the **Nuclear Reaction Data Explorer**, the web-based platform for visualization and retrieval of experimental and evaluated nuclear reaction data. Recent developments significantly expand the available observables and improve accessibility for both expert and occasional users.

A new expandable navigation panel provides streamlined access to the growing range of available tools and datasets. The platform now supports additional quantities beyond traditional reaction cross sections, including integral and resonance parameters such as Maxwellian Averaged Cross Sections (MACS) and neutron strength functions (S_0), and transmission retrieved directly from EXFOR and major nuclear data libraries. All web APIs have been updated, providing improved programmatic access for computational applications and automated workflows.

The new release has also introduced a number of additional features, including a new statistics page for EXDOR, bibliographic and reaction-index searches, side-by-side comparison of the latest evaluated nuclear data libraries, and access to historical nuclear data libraries using the DeCE code.

Since its original release, the Data Explorer has evolved into a comprehensive environment for the exploration of nuclear reaction data. Users can interactively compare evaluated and experimental datasets, visualize cross sections, thermal-neutron quantities, residual production cross sections and fission yields, while also accessing original EXFOR entries through integrated viewing tools. Recent developments continue the NDS strategy of making nuclear data more accessible through modern web technologies, APIs and user-friendly interfaces.

The Nuclear Reaction Data Explorer is available at https://nds.iaea.org/dataexplorer/



Staff News

Dragan Avramovski



We welcome Dragan Avramovski, who recently joined the Atomic and Molecular Data Unit of NDS as a Nuclear Data Analyst / Programmer. In his new role, Dragan will develop AI-powered database systems for nuclear structure and decay data, nuclear reaction data, and fusion data. He will apply machine learning techniques to automate data pipelines and enhance system performance and will work on key products such as LiveChart, the Medical Isotope Browser, TALYS World, and others, while also supporting the Section's Coordinated Research Projects.

Dragan previously worked in the Department of Nuclear Safety and Security, where he built scientific systems for managing sealed and unsealed radioactive sources. He is an electrical engineer by training with two masters in AI. His PhD research focuses on Machine Learning mainly with unsupervised learning.

His specialization is developing production-grade software systems based on scientific concepts.

NDS Meeting Reports

(TM = Technical Meeting, RCM = Research Coordination Meeting, CM = Consultants' Meeting, WS = Workshop, CRP = Coordinated Research Project)

Technical Meeting on Uncertainty Quantification for Nuclear Data

20-24 July 2026, hybrid event
Scientific Secretary: G. Schnabel
43 participants and IAEA staff



This meeting brought together researchers working in nuclear data, nuclear physics, reactor physics, radiation transport, statistics, and machine learning to share recent advances, discuss common methodological challenges, and identify opportunities for collaboration. By fostering dialogue across traditional disciplinary boundaries, the workshop also encouraged the transfer of ideas, methods, and best practices, ultimately contributing to more robust and reliable uncertainty quantification throughout the nuclear data ecosystem.
Details can also be found on the meeting webpage: https://conferences.iaea.org/event/488/.
Summary report of the meeting will be published as INDC(NDS)-0946.

35th Meeting of the International Nuclear Data Committee

15-19 June 2026
Scientific Secretary: A. Koning
30 participants and IAEA staff

The 35th INDC meeting was attended by 15 Members of the Committee and 6 observers from Member States and International Organizations. The main purpose of this biennial Committee meeting is to provide an update on the activities of the Agency's Nuclear Data Section during 2024 and 2025, including developments in nuclear data, databases and nuclear data services for Member States.

During the first two days, Nuclear Data Section staff presented an overview of work completed over the past two years, along with near-term and longer-term plans, including preparatory work for the 2028–2029 budget cycle. One day was reserved for closed discussions among INDC members, who also provided brief updates on their respective countries' nuclear data needs. A document was drafted summarizing the Committee's observations and recommendations. One of the Committee's requests was to keep members informed through virtual meetings between regular INDC meetings.



25th Technical Meeting of the International Fusion Research Council Subcommittee on Atomic and Molecular Data for Fusion

18-19 June 2026, hybrid event
Scientific Secretary: K. Heinola
15 participants and IAEA staff



The 25th Meeting of the IFRC Subcommittee on Atomic and Molecular Data for Fusion brought together experts to review the activities and future directions of the IAEA Atomic and Molecular Data (AMD) Unit. Participants discussed progress in key Coordinated Research Projects

(CRPs), including studies on vapour shielding, hydrogen permeation, impurities and molecules in edge plasmas, and tungsten-related research. The meeting also reviewed developments in AMD databases and the activities of the Data Centre, Code Centre, and GNAMPP networks, which support international collaboration in fusion research. Discussions concluded with recommendations and overviews of upcoming projects and events aimed at addressing emerging atomic, molecular and plasma-material interaction data needs for fusion energy development.
A summary report is in preparation and will be available as INDC(NDS)-0947.

Technical Meeting on (alpha,n) Reaction Data Evaluations and Data Needs

2-5 June 2026, virtual meeting
Scientific Secretary: P. Dimitriou
51 participants and IAEA staff



The 3rd Technical Meeting on (α,n) Data Needs was attended by 51 participants virtually.
The meeting continued the series established by the first and second meetings in 2021 (INDC(NDS)-0836) and 2023 (INDC(NDS)-0894). It reviewed progress in (α,n) cross-section and neutron-yield measurements, modelling, evaluations, and developments in simulation codes.
Discussions focused on low-energy (α,n) reactions up to 10 MeV relevant to applications in: (i) the nuclear fuel cycle, with emphasis on the ^{17}O compound system; (ii) spent fuel management and non-proliferation; (iii) low-background experiments; (iv) nuclear astrophysics; and (v) fusion applications.
More information can be found on the dedicated meeting page: https://conferences.iaea.org/event/462/.
Summary report is in preparation and will be published as INDC(NDS)-0945.

Technical Meeting of the International Network of Nuclear Reaction Data Centres

2-5 June 2026, Vienna, Austria
Scientific Secretary: N. Otsuka
25 participants and IAEA staff



The meeting was attended by 28 participants representing 12 cooperative Centres from seven Member States (China, Hungary, Japan, Korea, Russia, Ukraine and USA) and two International Organisations (OECD, IAEA). This year's meeting gathered technical staff of the Network.
Each centre presented their progress report and discussed various EXFOR related subjects such as compilation statistics and coverage, manual and dictionary, compilation needs, quality control, coding rule and tools for compilation and dissemination. Finally, the participants summarized the results of the discussions in 23 conclusions and 89 actions.
More information can be found on the dedicated meeting page: https://nds.iaea.org/nrdc/nrdc_2026/.
Summary report is available as INDC(NDS)-0944.

Scientific Seminar: A Pedestrian Approach to Atomic Computations, Data and Behaviour

20 May 2026, Vienna, Austria
Presenter: Prof. Dr. Stephan Fritzsche

The scientific seminar presented by Prof. Dr. Stephan Fritzsche (Helmholtz Institute Jena, Germany), discussed modern computational methods for generating accurate and reliable atomic data. Although atomic interactions with particles and light are well studied, predicting the behaviour of atoms and ions remains challenging due to the complexity of atomic processes and electron-electron interactions. The seminar introduced computational tools that provide consistent atomic data through a user-friendly and physics-oriented framework, reducing technical complexity and jargon while emphasizing the underlying atomic phenomena.

Prof. Fritzsche is a leading theoretical physicist specializing in atomic physics and relativistic quantum dynamics. His research focuses on the interaction of matter with intense light fields, including strong-field ionization, highly charged ions, and free-electron laser (FEL) applications. He has made significant contributions to the study of multi-photon ionization, decay cascades, and correlated quantum systems, and is also known for developing computational tools and community resources widely used in atomic, plasma, and astrophysical physics.

Workshop on Nuclear Data Needs for Antineutrino Spectra and their Applications

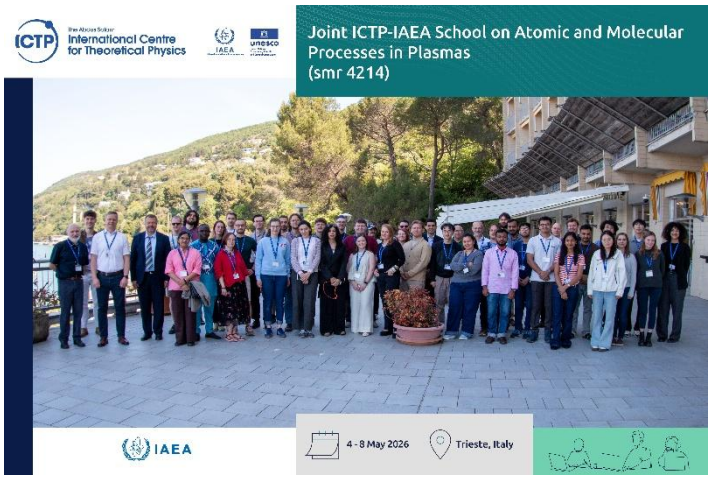
4-8 May 2026, Valencia, Spain
Co-organized by A. Algora (SPN), J.L. Tain (SPN) and P. Dimitriou (IAEA)



A workshop on the status of reactor antineutrino flux and spectrum measurements was held at IFIC (CSIC-University of Valencia) from 4 to 8 May, organized by IFIC (CSIC-U Valencia) in cooperation with the Nuclear Data Section.
While significant experimental and theoretical progress has been achieved in describing the reactor anti-neutrino flux and spectrum over the past two decades, the foundations of reactor antineutrino flux models still rely on the integrated beta-spectrum measurements performed by Schreckenbach et al. (ILL) in the late 1980s. More recent measurements of the $^{235}U/^{239}Pu$ beta-spectrum ratio by Kopeikin et al. at the Kurchatov Institute have revealed discrepancies of approximately 5%, suggesting potential normalization issues in the original ILL data.
The workshop focussed on the following topics:
- Requirements for a new measurement of aggregate beta-energy spectra for the main actinides
- Advances in decay data from recent TAGS and beta-spectrum experiments
- Impact of the JEFF-4.0 fission-yield evaluation, including associated uncertainties and covariances
Details can be found on the dedicated meeting webpage: https://indico.ific.uv.es/event/8411/.
A summary report is in preparation (INDC(NDS)-0942).

Joint ICTP-IAEA School on Atomic and Molecular Processes in Plasmas

4-8 May 2026, Vienna, Austria
Directors: C. Hill (UK), K. Heinola (IAEA), L. Sharma (IAEA) and Y. Ralchenko (USA)
49 participants and IAEA staff



Over the course of five days, School offered lectures and hands-on training for early-career researchers on plasma spectroscopy, atomic and molecular processes, collisional-radiative modelling, machine learning applications, and data management.
The School aimed to strengthen knowledge and skills in the spectroscopic analysis and modelling of plasmas, with applications in fusion energy research, astrophysics and industrial plasmas. The programme covered topics including atomic structure and collision calculations, molecular processes in plasmas, collisional-radiative modelling, plasma diagnostics, plasma-surface interactions, machine learning techniques for plasma applications, and the use of online atomic and molecular databases and tools. Practical sessions on data management, data analysis and dissemination complemented the lectures.
More details can be found at dedicated School page https://indico.ictp.it/event/11140.

Third Research Coordination Meeting of the Injected Impurities

17-18 March 2026
Scientific Secretary: K. Heinola
13 participants and IAEA staff

Ten experts in atomic collisional physics and edge plasma modelling for magnetic confinement fusion devices, together with IAEA staff, convened at the IAEA Headquarters in Vienna, Austria, from 17–19 March 2026 for the Third Research Coordination Meeting of the IAEA Coordinated Research Project (CRP) F43026, Atomic Data for Injected Impurities in Fusion Plasmas. During the meeting, the work plans for the last 15 months of the project were reviewed, ongoing activities were discussed, collaborative efforts were outlined, and data priorities were

established. The main outcomes of the meeting are summarized in INDC(NDS)-0943.



First Research Coordination Meeting on Tungsten Ions

17-19 February 2026, hybrid event
Scientific Secretary: K. Heinola
17 participants and IAEA staff



The meeting brought together international experts to review the current status of research and identify future data needs related to the ionization balance, spectroscopic properties, and collisional processes of tungsten ions in fusion plasmas across a wide range of plasma temperatures.
During the meeting, participants presented their CRP work plans and discussed opportunities for collaboration in three main areas: experiments using electron beam ion traps (EBITs), experiments on fusion devices, and theoretical calculations including applications ML methodologies for the interpretation of tungsten UTA spectral regions. The CRP will focus on improving the understanding of ionization processes from metastable states of low-ionization tungsten ions, neutral and proton collisions with tungsten ions, and the spectroscopic analysis of low- and medium-ionization stages of tungsten. These activities will contribute to the atomic data needed for plasma diagnostics and modelling in present and future fusion devices.
Summary report will be published as INDC(NDS)-0948.

Consultants' Meeting on Extending the IRDFF-II Library

3-6 February 2026
Scientific Secretary: R. Capote Noy
7 participants and IAEA staff



High-quality nuclear data is the most fundamental underpinning for all neutron metrology applications. The International Reactor Dosimetry and Fusion File version 2 (IRDFF-II) was released in 2020. The dosimetry library contains a consistent set of nuclear data for fission and fusion neutron metrology applications up to 60 MeV neutron energy.
The consultancy meeting was organized with the goal to review the dosimetry data status and new needs which emerged since the IRDFF-II release. Several new reactions are proposed to extend the library. Additional emphasis is placed on validation of capture dosimetry reactions outside the thermal region.
Individual contributions can be viewed from https://conferences.iaea.org/event/474/.
Summary report is in preparation and will be published as INDC(NDS)-0936.

In Memoriam

Dr. Shin-iti Igarasi

The nuclear data community is deeply saddened with the passing of Dr. Shin-iti Igarasi, a pioneering scientist whose contributions significantly advanced the field of nuclear data and nuclear reaction theory. His work influenced generations of researchers and helped shape the development of modern nuclear data science.

Dr. Igarasi was among the early leaders in applying computational methods to nuclear theory calculations. His renowned code, ELIESE-3, and his innovative statistical modeling approaches contributed substantially to the understanding of nuclear reactions and served as important tools for the scientific community.

As Director of the Nuclear Data Center, Dr. Igarasi was recognized for his strong commitment to scientific rigor and academic excellence. His leadership, critical thinking, and dedication to high research standards left a lasting impact on colleagues and collaborators alike.

Following his administrative service, he continued to make significant scientific contributions, pursuing advanced statistical model calculations based on the Gaussian Orthogonal Ensemble (GOE). His sustained engagement in research reflected a lifelong dedication to physics and nuclear data science.

Dr. Igarasi's scientific achievements and leadership have left a lasting legacy that continues to influence the nuclear data community. He will be remembered with great respect and appreciation for his contributions to the field.

Tribute provided by Satoshi Chiba, Professor Emeritus, Institute of Science Tokyo, Japan

Selected Reports

INDC(JPN)-0213 Proceedings of the 2024 Symposium on Nuclear Data, 14-15 November 2024, Osaka, Japan, edited by J. Hoti, A. Kimura and K. Terada, June 2026, https://doi.org/10.11484/jaea-conf-2026-001.

INDC(EUR)-0042 Extraction of experimental Legendre coefficients from neutron elastic and inelastic scattering on iron and carbon, prepared by G. Gkatis, et al., April 2026, https://doi.org/10.61092/iaea.3e74-pjcw.

INDC(EUR)-0043 Results of time-of-flight transmission measurements for ^{nat}Cu at a 50 m station of GELINA, prepared by A. Karakaxi, et al., April 2026, https://doi.org/10.61092/iaea.9fh7-ymab.

INDC(EUR)-0044 Results of time-of-flight transmission measurements for ^{208}Pb at a 50 m station of GELINA, prepared by V. Lombardi, et al., August 2026, https://nds.iaea.org/records/26t1f-qye78.

INDC(NDS)-0925 Summary Report of the Technical Meeting on Nuclear Data Needs for Antineutrino Spectra and their Applications, 7-11 April 2025, Seoul, Korea, prepared by A. Algora, N. Bowden, M. Fallot and P. Dimitriou, March 2026, https://doi.org/10.61092/iaea.31wy-pg89.

INDC(NDS)-0932 On Quadrupole Radiation in Photon Strength Functions, prepared by J. Kopecky, February 2026, https://doi.org/10.61092/iaea.6bkx-8ge9.

INDC(NDS)-0934 Verification of Zr and Pb Benchmarks from IPPE, VNIITF and TUD and Validation of Data Libraries, prepared by S. Simakov, M. Kostal and R. Capote, June 2026, https://doi.org/10.61092/iaea.pc9x-6rsj.

INDC(NDS)-0937 Summary Report of the Consultants' Meeting on Evaluation of Nuclear Moments (II), 16-19 December 2025, prepared by D. Balabanski, B. Cheal, G. Georgiev, N.J. Stone, A. Stuchbery, D. Yordanov and P. Dimitriou, July 2026 https://doi.org/10.61092/iaea.py22-ax5k.

INDC(NDS)-0943 Summary Report of the Third Research Coordination Meeting on Atomic Data for Injected Impurities in Fusion Plasmas, 17-19 March 2026, prepared by L. Sharma and K. Heinola, March 2026, https://doi.org/10.61092/iaea.52h6-zh2g.

INDC(NDS)-0944 Summary Report of the Technical Meeting on International Network of Nuclear Reaction Data Centres, 2-5 June 2026, prepared by N. Otuka and B. Pritychenko, July 2026, https://doi.org/10.61092/iaea.6pbm-chvb.

Limited number available cost-free on request only for **teachers and scientists from developing countries:**

Chart of the Nuclides 2022 Japanese Nuclear Data Committee and Nuclear Data Center, Japan Atomic Energy Agency.

Karlsruher Nuklidkarte *Booklet, 12th edition (2025).*

Nuclear Data Services – Contact Points

For services to customers in USA:
US National Nuclear Data Center, Bldg. 490, Brookhaven National Laboratory, P.O. Box 5000,
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For services to customers in OECD/NEA Data Bank member countries:
NEA Data Bank, OECD Nuclear Energy Agency, 46, Quai Alphonse le Gallo
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Website: http://databank.io.oecd-nea.org/codes/cps/ (Computer Program Services)
Website: http://databank.io.oecd-nea.org/data/overview/ (Nuclear Data)
Contact: Tel.: +33 1 73 21 28 30, Email: programs@oecd-nea.org; data@oecd-nea.org.

For services to customers from the Russian Federation:
Neutron data: Russia Nuclear Data Center, Centr Jadernykh Dannykh (CJD), Fiziko-Energeticheskij Institut, Ploschad Bondarenko,1,
249033 Obninsk, Kaluga Region, Russian Federation.
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Photonuclear data: Centre for Photonuclear Experiments Data, Centr Dannykh Fotoyadernykh Eksperimentov (CDFE),
Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Leninskie Gory, 119 922 Moscow, Russian Federation.
Tel. +7 495-939-3483; Fax +7 495-939-0896
Website: http://cdfe.sinp.msu.ru/
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Tel. +86 10-6935-8401; Fax +86 10-6935-8119
Contact: Shu Nengchuan, Email: nshu@ciae.ac.cn

Computer codes of US origin to all countries (there are charges and release restrictions):
Radiation Safety Information Computational Center (RSICC), Oak Ridge National Laboratory,
P.O. Box 2008, Oak Ridge, TN 37831-6003, USA.
Tel. +1 865-574-6176; Fax +1 865-241-4046
Email: pdc@ornl.gov

Computer codes of non-US origin to all countries (there may be release restrictions):
NEA Data Bank (see above)
Email: programs@oecd-nea.org, Tel.: +33 1 73 21 28 30

IAEA-NDS on-line services at Website https://nds.iaea.org/
Users in India, China, Russia and neighbouring countries may use
IAEA-NDS mirror websites:
http://www-nds.org.in (India); http://www-nds.ciae.ac.cn/ (China); http://www-nds.atomstandard.ru/ (Russia).

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