International Atomic Energy Agency

INDC(GDR)-31/G

INDC INTERNATIONAL NUCLEAR DATA COMMITTEE

PROGRESS REPORT

TO THE

INTERNATIONAL NUCLEAR DATA COMMITTEE

FROM THE

GERMAN DEMOCRATIC REPUBLIC

COMPILED BY D. SEELIGER

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NOT FOR PUBLICATION

IAEA NUCLEAR DATA SECTION, WAGRAMERSTRASSE 5, A-1400 VIENNA

CONTENTS

1. INTRODUCTION

The present report contents a brief review on nuclear data activities in the GDR during the time interval between the XIII-th and XIV-th INDC meetings as well as selected abstracts and a bibliography of recent nuclear data publications.

A more detailed information on all nuclear research activities, including nuclear data measurements and evaluations, is given in the annual report "Gemeinsamer Jahresbericht" (ZfK-503, 1983), which was distributed to the INDC members at the XIV-th INDC meeting (document INDC(GDR)-29/G).

The national nuclear data coordination group "Arbeitsgemeinschaft Kerndaten" continued successful activities at the TU Dresden, ZfK Rossendorf, ZfK Leipzig, SAAS Berlin and other institutes and organisations. During that time a meeting of the CMEA nuclear data coordination group was provided by the TU Dresden as well as the first IAEA research coordination meeting of the CRP on 14 MeV nuclear data (Gaussig, November 1983).

The sequence of the small annual International Symposia on Nuclear Physics at the TU Dresden (Gaussig), is continued with the following scientific profile of the different meetings:

1983	XIII-th ISNP	Fast Neutron Reactions (14 MeV CRP)
1984	XIV-th ISNP	Neutron Generators (CMEA coordination group)
1985	XV-th ISNP	Neutron Data - inelastic scattering - fission

The fruitful cooperation with the NDS of the IAEA was continued and is acknowledged herewith.

2. REVIEW OF NUCLEAR DATA ACTIVITIES

2.1. TU Dresden, Division of Nuclear Physics

- Data of elastic and inelastic scattering of fast neutrons in the incident energy range between 7 MeV and 12 MeV have been obtained from recent measurements with the multi-detector tof-spectrometer at the Zfk tandem facility for ^{6}Li, ^{7}Li, ^{24}Mg, ^{28}Si, ^{32}S (isolated levels) and ^{93}Nb (continuous spectra). Obtained data as well as their theoretical interpretations are submitted for publication in different journals (Yad. Konst., Nucl. Phys., Z. f. Phys., Nucl. Sci. a. Eng. a.o.)

This work is carried out in cooperation with the PEJ Obninsk.

- Neutron emission spectra for 14 MeV incident neutrons have been measured at the pulsed DT-generator of the TUD for ^{12}C and Pb. These measurements are combined with measurements of the neutron leakage spectra from a lead sphere using different spectroscopic methods (tof, activation techniques, proton recoil spectroscopy) as well as neutron transport calculations using the codes BLANK and MORSE. The aim of this work is to evaluate a best data set for fusion blanket calculations. Preliminary differential data have been presented at the 1983 CRP-Meeting in Gaussig. This work is done in cooperation with the IAE Moscow, PEJ Obninsk and ZfK Rossendorf.

- A few years ago a broad research programme on fission neutron spectra had been sarted, which includes experimental as well as theoretical investigations for both spontaneous and neutron induced fission. First results were published at the recent Antwerp, Kiev, Smolenice and Gaussig Conferences but also in journal publications (J. Phys. G. a.o.) and as INDC-reports (see sect. 4). At the present INDC-meeting the reports INDC(GDR)-28/L, INDC(GDR)-30/L are distributed, which content some results of experimental and theoretical investigations in this direction. Further informations are given in the abstracts of the present report (sect. 3).

  Following the former measurement of the ^{252}Cf - spontaneous fission neutron spectra as described in detail in INDC(GDR)-28/L recently a new, second 1000h - measurement of the high-energy and of the ^{252}Cf-spectrum was carried out during the time interval from March to June 1984. This later experiment was based on a Cf-source provided by the IAEA in cooperation with the PTB Braunschweig. Preliminary results of this experiment seem to be in agreement with the former measurement up to the highest energies (above 20 MeV). Final results will be presented at the AGM on Standards in Geel, 1984.

- In cooperation with the JINR Dubna the investigation of actinide nuclei neutron resonances at the pulsed reactor IBR-30 was continued. The first step of this investigations of chemically induced shifts of the 6,67 eV resonance of ^{238}U and the Doppler broadening of this resonance in crystal lattices and UF_6 gas had been reported at the last INDC meeting, at the AGM on resonance parameters (Vienna, 1982) and also in different journals (Nucl. Phys., Yad. Fi 7, Kernenergie a.o.).

  The second step of this investigations included nine resonances of ^{235}U and ^{234}U having final but strongly different fusion width. The effect of chemically induced resonance shifts as found in the case of ^{238}U was approved. However, an indication for a correlation between the $\Gamma f/\Gamma\gamma$ ratio and the shape of nuclei in the compound resonance states was observed (see report INDC(G)-32/G). The results are in print in the journal Nuclear Physics.

Besides this, using the same equipment and resonance codes the authors were looking for the so-called neutron analogon of the Čerenkov effect and the red-shift of neutron resonances (preprints JINR and Yad. Fiz.) by investigation of shape of rear earth resonances.

- By the data evaluation group the neutron nuclear data file for silicon was transformed into the ENDF/B-format and transmitted to the users (INDC(GDR)-20/L and -22/L). For fussion blanket calculations a specialized evaluation of neutron emission cross sections of lead was finished (in context with the experimental investigations at 14 MeV mentioned above). For further nuclear data evaluation work the combined pre-equilibrium and equilibrium computer code AMAPRE (basing on the french code AMALTMEE but including also angular distributions of emitted particles) was developed and tested. This work is in cooperation with the CJAD Obninsk.

- Basing on the neutron nucler data library at the TUD computer center about 15 requests for neutron nuclear data coming from the users in the GDR were fullfilled.

2.2. TU Dresden, Division of Applied Nuclear Physics

- The high-precision measurements of the fission cross-sections using the time-correlated associated particle method in cooperation with the RI Leningrad are continued. Results have been published at the AGM in Smolenice, March 1983, and elsewhere. New measurements at 4,4 MeV will be presented at the AGM on Standards in Geel, 1984.

2.3. Central Institute of Nuclear Research Rossendorf

- With the special fast substituted Lattice SEG-IV in the zero power reactor effective cross sections of several structural materials have been determined. These data are compared with different evaluations (see sect. 3).

2.4. Central Institute of Isotope and Radiation Research Leibzig

- The service for users of structure and decay data in the CDR as reported in previous progress reports was continued.

- The influence of different chemical compounds on the nuclear dexitation rato of ^{99m}Te was investigated and precise measurements of the ^{125}I half-life are carried out. (see sect. 3).

3. SELECTED ABSTRACTS

3.1. New Measurement of the 252-Cf (Sf) neutron Spectrum in the high-energy range

H. Märten, D. Seeliger,
Technical University Dresden,

and

R. Böttger,
Physikalisch-Technische Bundesanstalt Braunschweig, FRG

The high-energy end of the ^{252}Cf spontaneous-fission neutron spectrum has been measured by employing a miniature ionisation chamber with Cf sample (about 70 000 fissions per s). Two NE 213 neutron detectors with efficient pulse-shape discriminations of γ-rays and cosmic-myon background were used at flight paths of 3.7 and 5.9 m. The neutron spectra have been measured by means of the two-dimensional (time-of-flight, scintillator response)-spectroscopy. To quarantee minimum experimental errors, the analysis procedure involves the selection of the optimum scintillator response bias depending on neutron energy.

Preliminary results of the long-time measurement are compared with previous data as well as several spectrum calculations.

3.2. Description of the 252-Cf(Sf) neutron spectrum in the framework of both the complex cascade-evaporation model and the generalized madland-nix model

H. Märten and D. Seeliger,
Technical University Dresden

An extended version of the cascade evaporation model was used to calculate the $^{252}Cf(sf)$ neutron spectrum in a wide energy range. The dependence of the initial distributions in fragment excitation energy of the initial distributions in fragment excitation energy on both the fragment mass number A and the total kinetic energy of the fragments TKE was taken into account. We applied a nuclear level density description which includes the dependence of both shell and pairing effects on excitation energy.

Further, we have generalized the Madland-Nix model considering the dependence of model parameters on A.

The results of the calculations are compared with recent experimental data.

see also: J. Phys. G. 10 (1984) 349-362
INDC(GDR)-30/L

3.3. Measurement and theoretical calculations of the 252-Cf spontaneous-fission neutron spectrum

H. Märten and D. Seeliger
Technical University Dresden,

(Review to be presented at the AGM on Standards, Geel, 1984)

Concerning the 252-Cf(sf) neutron spectrum, remarkable progress in experiment and theory have been made during the last three years.

Experimental techniques and analysis procedures were developed. The precise measurement of the standard neutron spectrum from spontaneous fission of 252-Cf requires the optimum experimental arrangement corresponding to the energy range to be measured. Several types of data corrections have to be considered with care (random background, background due to non-correlated STOP signals in time-of-flight measurements, in-/out-scattering by constructive materials and air, fragment detection efficiency etc.). However, the central task is the precise determination of neutron detection efficiency.

The most important requirements to be met in a 252-Cf(sf) neutron spectrum measurement are summarized. Here, we consider the low- and high-energy spectrum ranges especially.

In general, theoretical models for the calculation of fission neutron spectra are based on the predominant emission mechanism, i.e. the evaporation from fully accelerated fragments. It is emphasized that an exact evaporation theory should consider the fragment distribution in nucleonic number, excitation energy, kinetic energy, and nuclear spin as well as the cascade neutron emission from highly excited, neutron-enriched fragments in competition to γ-ray emission. Several approaches which were studied in the framework of both the Weisskopf formalism and the Hauser-Feshbach theory are discussed. We point out some of the deviations in spectrum calculation if neglecting or approximating typical characteristics of fission neutron emission.

The results of new 252-Cf(sf) neutron spectrum calculations are compared with recent experimentaldata.

Finally, we discuss the possible influence of eventual emission mechanisms other than evaporation from fully accelerated fission fragments.

3.4. Analysis of Multiple-Differential Emission Cross Sections of Neutrons from Spontaneous Fission of 252-Cf

H. Märten, D. Neumann, D. Seeliger
Technical University Dresden,

The prompt neutron emission in the spontaneous fission of ^{252}Cf is studied in the framework of the cascade evaporation model (CEM) for specified scission configurations. In addition

to the analysis presuming the main emission mechansim, i.e. evaporation from fully accelerated fission fragments, the energy and angular distributions of neutrons evaporated during fragment acceleration (NEDFA) as well as of neutrons coming from the decay of ^{5}He nuclei (HEN) are estimated on the base of theoretical data on post-scission dynamics and experimental results on ^{5}He emission in Cf fission respectively. It is shown that scission neutrons should be attributed to single-particle excitations which occur due to rapid change of nuclear potential close to scission.

see also: INDC(GDR)-32/G
TUD-report, 05-02-84

3.5. Chemically induced shifts of 235-U and 234-U neutron resonances

S. Mittag, D. Pabst, L.B. Pikelner, W. Pilz, and R. Tschammer
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A. Meister, D. Seeliger, and K. Seidel
Sektion Physik, Technische Universität, 8027 Dresden, GDR

Transmission spectra were measured with time-of-flight technique at the Dubna pulsed reactor for samples of metallic U, UO_2, U_3O_8, and UO_3 enriched in ^{235}U, and were compared in the regions of nine low-energy resonances to observe chemically induced shifts. After elimination of contributions caused by different Doppler broadenings, the shifts are interpreted as changes of the mean-square charge radius for nuclei capturing neutrons. The $\langle r^2 \rangle$ of the compound nucleus states show on the average a weak diminution compared with the ground state value.

3.6. Determination of effective absorption cross-sections of structure materials

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Academy of Sciences of the GDR

The measurements were performed in a special fast substituted lattice (SEG-IV) with energy-independent adjoint neutron flux /1/. This enabled us to use the pile-oscillator method, because in that case the moderation term of the reactivity-worth becomes zero and the absorption term is directly proportional to the effective absorption cross-section of the material under investigation. These cross-sections were determined relative to ^{10}B as a standard and compared with calculated ones (table 1).

Table 1: C/E-values for effective absorption cross-sections

	σ_{exp} [mb]	ABBN-64	ABBN-78	JFS-II	BARC	KEDAK-3	UKNDL
Ti	42±6	0.95	-	-	-	-	-
Cr	17.7±2	1.18	1.24	1.33	1.6	0.83	1.18
Mn	255±40	-	0.82	0.95	-	-	-
Fe	14.1±2	0.81	1.15	1.15	2.2	1.9	-
Ni	36.4±4	0.87	1.12	0.98	2.6	0.98	-
Cu	82±8	1.22	-	1.11	-	-	-
Zr	33±5	1.01	-	-	-	-	1.07
Nb	282±34	1.56	-	-	-	-	-

In general chromium is calculated too high by about 25 %, whereas the data for manganese (especially those for resonance shielding) are underestimated. For iron the spread of the data is rather high, the best agreement (C/E = 1.07) being achieved with evaluated data of the Technical University Dresden /2/. Obviously, the Indian set BARC (Garg, 1976), which is based on the ENDF-B/III, is the worst concerning the nuclides Cr, Fe and Ni.

/1/ K. Fährmann, E. Lehmann, Kernenergie 24 (1981) 431
/2/ V.M. Bychkov, V.V. Vozyakov, V.N. Manokhin, F. Smoll, P. Rösner, D. Seeliger, D. Hermsdorf, Yad. Konst. 1 (36), 1980, p. 65

3.7. Variation of the nuclear deexcitation rate of Tc-99m in different chemical states

G. Brunner, K.-P. Dostal, E. Hartmann, M. Nagel, A. Rigo, W. Stuchlik
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A systematic experimental and theoretical study of the nuclear deexcitation rate of Tc-99m in the halogen and oxy complex ions TcX_6^{2-} and TcO_4^-, respectively, (X=I, Br, Cl, F) as well as in the metal was carried through. Preparation of the halogen complexes occured by standard methods /1/; the measurements were accomplished by a semidifferential approach /2/. The measuring results for X=Cl, Br, I, and TcO_4^- were published /3/. The X_α-SW-SCF-treatment /4/ of the systems studied showed an excellent agreement between theoretical and experimental values for X=Br, I and TcO_4^- and a discrepancy for X=Cl. The reason for the latter was found to be a chemical instability of our $^{99m}TcCl_6^{2-}$ compound. An improved preparation procedure /5/ gave a chemical stable $TcCl_6^{2-}$ complex, for which we measured the theoretically expected decay constant variation.

Our experiments on the metallic Tc-99m, details of which are to be published /6/, confirmed the measuring value of Bainbridge /7/, whereas the result of the X_α treatment /8/ speaks in favour of Mazaki's measurement.

Our experiments on TcF_6^{2-}, to be published /6/, confirm the tendency of the decay constant of Tc-99m in the halogen complexes predicted by the X_α theory /4/, but a quantitative agreement could not be found, in contrast to the I, Br, Cl cases.

Experiments /9/ and X_α calculations on the decay constant variation of the radiopharmaceutical Tc-99m Bis(meso-dimercapto-succinato)oxotechnetate(V) were published /10/.

/1/ K. Schwochau, Angew. Chem. 76 (1964) 9-19
/2/ P. Huber et al., Phys. Lett. 27B (1968) 86-87

/3/ M. Nagel et al., Z. Naturforsch. 33a (1978) 1050-1055
/4/ E. Hartmann et al., Z. Phys. A290 (1979) 349-353
/5/ K.-P. Dostal, B. Bayerl, Z. Naturforsch. 35a (1980) 894-895
/6/ G. Brunner et al., Z. Phys. A, to be published
/7/ K.T, Bainbridge et al., Phys. Rev. 90 (1953) 430-439
/8/ E. Hartmann, G. Seifert, Phys. stat. sol. (b) 100 (1980) 589-594
/9/ B. Johannsen et al., Radiochem. Radioanal. Letters 47 (1981) 57-62
/10/ E. Hartmann, G. Mocker, ZfK-Bericht 1981

3.8. Precision measurement of the decay constant of ^{99m}Tc in the pertechnetate ion by means of a varionational method*

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In radioactive decay a linear relation exists between the measured counting rate (uncorrected for dead-time and background) and the background-corrected counting rate multiplicated by the factor $e^{\lambda t}$. Varying the decay constant λ, this connection gets nonlinear, and the statistical error of the slope, estimated by means of linear regression, increases. Therefore, the statistical error of the slope has a minimum at the wanted true value of decay constant. In this way the decay constant of ^{99m}Tc in the pertechnetate ion was found to be $\lambda=(3{,}20525\pm0.00093)\cdot10^{-5}s^{-1}$ respectively $T_{1/2}=(6{,}0070\pm0{,}0018)h$.

*This work has been published in Isotopenpraxis, 18 (1982) 201

3.9. Measurement of the halflife of ^{125}I

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The halflife of five ^{125}I sources was determined by a two-NaI(Tl)-scintillation-detector-method to minimize geometrical and other errors. The total measuring time was 130d (about two halflifes of ^{125}I).

After testing the clean exponential behaviour of the background- and dead-time-corrected counting rates as a function of the time we got a value of

$$T_{1/2} = (59.54 \pm 0.02)d$$

for the ^{125}I halflife. The error is the standard deviation of the mean value of the five sources. It agrees with the standard deviation of the slope of the single decay curves in logarithmic representation, determined by linear regression.

The result may be compared with the value given in /1/ $T_{1/2}=(59.666 \pm 0.016)d$, to our knowledge the exactest result among the hitherto published ^{125}I halflifes.

/1/ W. Kündig, P.E. Müller, Helv. Phys. Acta 52 (1979) 555

4. RECENT NUCLEAR DATA PUBLICATIONS

1. II. International Symposium "Neutron-induced Reactions", Smolenice, 1979
   B. Basarragtscha, D. Hermsdorf, D. Seeliger
   "Description of gamma-Production Spectra and Cross Sections in the Frame of the Statistical Model of Nuclear Reactions" in Physics and Applications, Vol. 6, S. 183, 1980

2. IXth ISNP, Gaussig, 1979, ZfK-410 (1980) 147
   D. Hermsdorf
   "First Results in Evaluation of Neutron Nuclear Data for Si"

3. Kernenergie 23 (1980) 285
   D. Hermsdorf, D. Seeliger
   "Mikroskopische Kerndaten, Teil II" (Fortschrittsbericht)

4. Proc. Neutron Conference, Kiev, 1980, Vol. III (1980) 3
   W. Grimm, H. Märten, D. Seeliger
   "On-line experiment for the determination of neutron emission spectra by the two-dimensional measurement of the neutron time of flight and the proton recoil energy"

5. Xth ISNP, Gaussig, 1980, ZfK-459 (1981) 98
   H. Märten, D. Seeliger
   "High-energetic neutron emission in fission"

6. Xth ISNP, Gaussig, 1980, ZfK-459 (1981) 158
   D. Hermsdorf
   "Investigation of $^{28}Si(n,alpha)^{25}Mg$ in terms of statistical and direct reaction mechanisms"

7. Xth ISNP, Gaussig, 1980, ZfK-459 (1981) 169
   D. Hermsdorf, E. Paffrath
   "Evaluation of gamma-Production Cross Sections of Neutron-Induced Reactions in Si"

8. I.st Specialists Meeting CMEA on Nuclear Data, Varna, 1981,
   D. Hermsdorf
   "Evaluation of Neutron Nuclear Data for Fe and Si for the Library SOKRATOR"

9. 4. International Symposium "Neutron Capture gamma-Ray Spectroscopy and Related Topics", Grenoble, 1981,
   B. Basarragtscha, D. Hermsdorf, E. Paffrath, D. Seeliger
   An approach for a consistent description of gamma-ray spectra from (n,x gamma)-reactions induced by fast neutrons"

10. IAEA Advisory Group Meeting on Nuclear Data for Radiation Damage Assessment, Vienna, 1981, IAEA-TECDOC-263 (1982) 123
    B. Basarragtscha, D. Hermsdorf, D. Seeliger
    "A Simple Model for Calculations of fast Neutron-Induced gamma-Ray Spectra"

11. TU-Information 05-12-81, 1981
    D. Hermsdorf
    "Evaluation - Objectives, Methods and Results"

12. Nucl. Phys. A362 (1981) 18
A. Meister, D. Pabst, L.B. Pikelner, K. Seidel
"Isomer-Shift Analogue in Neutron Resonances"

13. IAEA, Consultants Meeting on Uranium and Plutonium Isotope Resonance Parameters, Vienna, 1981, Proc. INDC(NDS)-129/GS (1981) 265, Preprint TU Dresden 05-17-81, 1981
A. Meister, D. Pabst, L.B. Pikelner, W. Pilz, D. Seeliger, K. Seidel, R. Tschammer
"Differences in the Doppler Broadenings of Neutron Resonances in Crystals and Gas studied at the 6.7 eV Resonance of ^{238}U"

14. Yad. Fizika 34 (1981) 1173, Preprint VIK Dubna, P3-81-89 (1981)
K. Seidel, A. Meister, D. Pabst, L.B. Pikelner, W. Pilz
"Resonanzwechselwirkung von Neutronen mit molekularem Gas und Kristallen" (in russ.)

15. XIth ISNP, Rathen, 1981, ZfK-476 (1982) 58
W. Grimm, H. Märten, D. Seeliger, B. Stobinski
"Minicomputer-coupled two-dimensional (TOF,PRE)-measurement for the determination of fission neutron spectra up to very high emission energies"

16. INDC(GDR)-17/L (1982)
H. Märten, D. Seeliger, B. Stobinski
"The high-energetic part of the Cf-252 spontaneous-fission neutron spectrum"

17. Proc. Europhysics Topical Conf. on Neutron Induced Reactions, Smolenice, CSSR, 1982, Physics and Applications, Vol. 10 (1982) 287
H. Märten, D. Seeliger, B. Stobinski
"High-energetic neutron emission in fission"

18. Proc. Int. Conf. on Nuclear Data for Science and Technology, Antwerp, 1982, ed, K.-H. Böckhoff, D. Reichel Publ. Comp. Eindhoven (1983) 488
H. Märten, D. Seeliger, B. Stobinski
"The high-energetic part of the neutron spectrum from spontaneous fission of 252-Cf

19. XIIth ISNP, Gaussig, 1982, ZfK-491 (1982) 122
H. Märten, D. Seeliger, B. Stobinski
"The high-energy end of the neutron spectrum from spontaneous fission of 252-Cf

20. XIIth ISNP, Gaussig, 1982, ZfK-491 (1982) 125
H. Märten, D. Neumann, D. Seeliger
"Calculation of double-differential emission cross sections of neutrons from spontaneous fission of 252-Cf on the base of the cascade evaporation model"

21. International Conference on Nuclear Data for Science and Technology, Antwerp, 1982, Proc. p. 968
A. Meister, S. Mittag, D. Pabst, D. Seeliger, W. Pilz, K. Seidel, R. Tschammer, D. Hermsdorf
"Doppler Broadening of ^{238}U Resonances in Crystal Lattices and Molecular Gas Compared with the Free-Gas Approximation"2

22. III. International Symposium "Neutron-Induced Reactions", Smolenice, 1982, Physics and Applications, Vol. 10 (1982) 339
D. Hermsdorf
"Investigation of direct reaction contributions to neutron-induced charged-particle emission from Silicon" (Poster)

23. XIIth ISNP, Gaussig, 1982, ZfK-491 (1982) 198
D. Hermsdorf, E. Paffrath, H. Phillip, L. Neumann
"Evaluation of Neutron Nuclear Data for Silicon"

24. J. Phys. G: Nucl. Phys. 8 (1982) 275
B. Basarragtscha, D. Hermsdorf, E. Paffrath
"An Approach for a Consistent Description of gamma-Ray Spectra from (n,x gamma) Reactions Induced by Fast Neutrons"

25. Yad. Konst. 45 (1982) 7
H. Förtsch, D. Schmidt, D. Seeliger, T. Streil, G.N. Lovchikova, A.M. Trufanov
"Querschnitte der elastischen and unelastischen Neutronenstreuung an den Kernen ^{6}Li and ^{7}Li im Energiebereich 7 bis 10 MeV" (in russ.)

26. Kernenergie 26 (1983) 313, TU-Information 05-27-82, 1982
A. Meister, S. Mittag, D. Pabst, W. Pilz, D. Seeliger, K. Seidel, R. Tschammer, D. Hermsdorf
"Doppler Broadening of ^{238}U Resonances in Crystal Lattices and Molecular Gas Compared with the Free-Gas-Approximation"

27. Nucl. Science Engn. 83 (1983) 294
B. Basarragtscha, D. Hermsdorf, D. Seeliger
"A Simple Model for Calculation of fast Neutron-Induced Gamma-Ray Spectra"

28. Kernenergie 26 (1983) 261
D. Hermsdorf
"Einschätzung von Kerndaten - Ziele, Methoden und Ergebnisse" (Fortschrittsbericht)

29. ECHAYA 14 (1983) 373 (in russ.), INDC(CCP)-217/LI (in engl.)
D. Seeliger, S. Unholzer, D. Schmidt, T. Streil, D. Hermsdorf, V.M. Bychkov, A.V. Ignatyuk, V.P. Lunev
"Beitrag des directen und statistischen Reaktionsmechanismus bei der Streuung schneller Neutronen an leichten and mittelschweren Kernen" (Review)

30. INDC(GDR)-20/L, 1983
D. Hermsdorf
"Description of the Evaluated Neutron Nuclear Data File 2015 for Silicon of the SOKRATOR Library"

31. INDC(GDR)-22/L, 1983
D. Hermsdorf
"Consistent Interpretation of Neutron-Induced Charged-Particle Emission in Silicon"

32. Yad. Konst. 52 (1983) 16
H. Förtsch, D. Schmidt, D. Seeliger, T. Streil, G.N. Lovchikova, A.M. Trufanov
"Querschnitte der elastischen und unelastischen Neutronenstreuung an den Kernen ^{6}Li und ^{7}Li bei der Inzidenzenergie 8.90 MeV (in russ.)

33. EXFOR-32001
M. Adel-Fawzy, H. Förtsch, S. Mittag, D. Schmidt, D. Seeliger, T. Streil
"Elastic and Inelastic Scattering of Neutrons in the Energy Range 7 to 12 MeV on ^{6}Li, ^{7}Li, ^{12}C, ^{32}S, ^{93}Nb and ^{209}Bi"

34. Proc. IAEA Consultants' Meeting on the U-235 Fast-Neutron Fission Cross-Section, and the Cf-252 Fission Neutron Spectrum, Smolenice, CSSR, 1983, INDC(NDS)-146/L (1983)
H. Märten, D. Neumann, D. Seeliger
"Theoretical analysis of the Cf-252 fission neutron spectrum"

35. Proc. Allunionskonferenz ueber Neutronenphysik, Kiew, 1983, in print, 1984
H. Märten, D. Neumann, D. Seeliger
"Analysis of multiple-differential emission cross sections of neutrons from spontaneous fission of 252-Cf"

36. XIIIth ISNP, Gaussig, 1983, im Druck, 1984
H. Märten, D. Neumann, D. Seeliger
"The use of a 252-Cf source for neutron detector calibration"

37. V. Sommerschule "Daten und Datenstrukturen in der Physik", Comp. Phys. Comm. 33 (1984) 7
D. Hermsdorf
"On the Use of Nuclear Data in Science and Technology"

38. 7.th Spec. Mtg. Reaction Data Centres, Obninsk, Moscow, MEMO 4C-3/269, 1984
D. Hermsdorf
"Recommendations for the use of formatting rules in ENDF/B"

39. XIIIth ISNP, Gaussig, 1983, INDC-Bericht, in print, 1984
D. Hermsdorf
"Theoretical Models and Computer Codes for 14 MeV Neutron Nuclear Data Calculations"

40. XIIIth ISNP, Gaussig, 1983, INDC-Bericht, in print, 1984,
H. Kalka, D. Hermsdorf, D. Seeliger
"Description of the angular dependence of neutron emission spectra from natural Lead in the frame of GEM"

41. Neutron Conference, Kiev, 1983, Proceedings in print, 1984
D. Hermsdorf, H. Kalka, D. Seeliger, A.V. Ignatyuk, V.P. Lunev
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