



International Atomic Energy Agency

INDC(GDR)-8/G

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**INDC**

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**INTERNATIONAL NUCLEAR DATA COMMITTEE**

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Progress Report to INDC  
from German Democratic Republic

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September 1978

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## Activities on measurement, compilation and evaluation of nuclear data

### 1. Organisation

During the period between the IX-th and the X-th INDC-meeting in the GDR a coordinating group for nuclear data activities ("Arbeitsgemeinschaft Kerndaten") has been organized. In this group are connected representatives from Institutes of Academy of Science, Universities, the "Staatliches Amt für Atomsicherheit und Strahlenschutz" and from the industry, which are interested or engaged in nuclear data activities. The responsibilities of this group are similar to those of the national nuclear data committees in other countries. One of the special points is the elaboration of recommendations concerning the development of national cooperation as well as international cooperation with the IAEA.

### 2. Neutron Data

Measurements of neutron cross sections are carried out almost completely at the Technical University Dresden, in cooperation with the FEI Obninsk, the RI Leningrad but also with the University and Institute of Physics in Bratislava. Now measurements of the elastic and inelastic scattering cross sections in the energy range 7...11 MeV and of precise, absolute fission cross sections at two neutron generators and a 10 MeV tandem accelerator are in progress.

Recently a set of new experimental data concerning elastic and inelastic scattering of 3.4 MeV neutrons for many nuclei have been transmitted to the NDS in the format EXFOR.

Evaluations of all reaction channels with fast neutrons are carried out also at the Technical University Dresden in cooperation with the data centre of the FEI Obninsk. Recently a comparative data evaluation for iron was finished and evaluation for silicon has been started.

At the BESM-6 computer of the Technical University Dresden a neutron nuclear data library was organized, which provides also the data service for all interested organisations in the fields of fundamental and applied nuclear research.

### 3. Non-neutron data

#### 3.1. Nuclear reaction data with charged particles

Measurements of different kind of reaction data with charged particles are carried out at the ZfK Rossendorf and the Technical University Dresden in cooperation with the JINR Dubna and the FEI Obninsk. Namely, recently excitation functions and angular distributions of (p,n)- and (p, $\gamma$ )- reactions have been investigated.

A compilation of this (p,n)-data in the EXFOR format now is in progress. Another compilation of excitation functions of heavy ion reactions is prepared for publication (W. Neubert, ZfK Rossendorf, Atomic Data and Nuclear Data Tables).

There are different users of charged particle nuclear data in the GDR coming from fundamental and applied research.

#### 3.2. Nuclear structure data

Measurements of nuclear structure data, such as spectroscopic information, life-time of excited states a.o., are carried out at the ZfK Rossendorf. In the Central Institute of Isotope Techniques (ZfI Leipzig) half-lives of radioactive nuclides are investigated. Compilations of special kind of data are elaborated at the ZfI Leipzig (atomic masses) and at the TU Dresden (fission products).

In 1977 the organisation of a structure data library at the R1040 computer, using the files ENDF/B-IV (Fission Products Library) and ENSDF was started.

### 3.3. Atomic and molecular data

Measurements of special kinds of atomic and molecular data are carried out at the ZfK Rossendorf, at the Central Institute of Electron Physics (ZIE Berlin), at the Humboldt-University Berlin and in other Institutes. So far, there are no activities on compilation or evaluation of AMD.

Nevertheless, there exists a growing interest in such kind of nuclear data for plasma and solid states physics.

### 4. Original works on nuclear data

Short abstracts with more detailed informations on all nuclear research activities in the GDR, including nuclear data activities, are collected in the annual report "Gemeinsamer Jahresbericht 1977" (ZfK-350, Mai 1978), which recently was distributed as an INDC(GDR)-7/G report to the INDC members.