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and

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Introduction
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Neutron time-of-flight spectrometry
Characteristic features of pulse time-of-flight
facilities
Neutron capture cross section measurements
Neutron resonances and R-matrix

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Nuclear data for reactor design, waste transmutation
and fuel cycle closing

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Preface

Parameters of neutron resonances have been published in Volumes I/16A and I/16B and they were updated in Volume I/16C. Because of the great interest in these data many more measurements have been performed since the publication of the last volume. Hence in this volume all the new data are presented together with the previous results. Since the total amount of data is very large only the parameters of the most important resonances could be included in the printed version whereas the data for all resonances are contained in the Supplement available online. Tables indicate where the data for different resonances can be found.

The quality and precision of the data has been considerably improved, partly by the operation of new neutron spectrometers, e.g., the CERN time-of-flight facility recently put into operation and also by the use of new carefully designed neutron capture detectors. Again a considerable effort was made in comparing data from different sources in order to solve some previous discrepancies and establish 'best values', one of the main characteristics of Landoldt- Börnstein publications. In order to compare the data from different sources a comparison of the various experimental installations has been given.

Parameters of neutron resonances are finding increasing interest, not only for scientific problems like the understanding of astrophysical processes but even more so for applications. For the construction and the safety of conventional nuclear reactors such data are essential and for new developments like the thorium-uranium cycle or for nuclear waste transmutation they are indispensable.

The team of authors has been complemented by additional co-authors and thus the competence of the group has been further increased. I would like to thank all authors for their careful work and their great effort to collect data from all internationally available sources.

Thanks are also due to the members of the Landoldt- Börnstein editorial staff who have made major contributions to the successful production of this volume.

Geneva, April 2009

The Editor

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