Preface

Research activity on nuclear data at JCPRG

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Nuclear reactions serve as the key source for multi-purposes such as the electric power generation, industrial and medical use. The extensive and accurate knowledge of nuclear reactions is indispensable for the effective and peaceful use of nuclear energy. For the aforementioned purposes, a nuclear database plays a vital role. Nuclear database provides the best estimate of data for nuclear reactions and supplies this information to a wide range of data users in various fields of science and their applications.

The Exchange Format (EXFOR) database is the universal common repository for the experimetal data of nuclear reactions, which was established in 1967 and is maintained by the International Network of Nuclear Reaction Data Centres (NRDC). The Hokkaido University Nuclear Reaction Data Center (JCPRG) was founded in 1973 for the research of nuclear reaction databases, JCPRG was originaly the abbreviation of Japan Charged Particle Nuclear Reaction Group. The JCPRG developed an original nuclear reaction database called the Nuclear Reaction Data File (NRDF), which contains the data of the charged-particle and photon-induced reactions measured in Japanese facilities. In 1975 JCPRG joined NRDC and is the first member institution based in an Asian country. Since then, JCPRG have been providing compiled nuclear reaction data to the EXFOR database. Today, JCPRG contribution to the EXFOR database amounts to approximately 10% of the total entries

In addition to the contributions for the EXFOR database, research and development in nuclear data science is the important mission of JCPRG,

and JCPRG have been also a part of an ImPACT (Impulsing Paradigm Change through disruptive Technology) program (2014-2018). The project aims for the reduction and transmutation of nuclear reactor residues and JCPRG was responsible for performing Monte Carlo simulations for the fragmentation reactions.

JCPRG also have developed user-friendly computer tools for database compilation. Firstly, JCPRG database editor called HENDEL (Hyper Editor for Nuclear Data Exchange Libraries) has user friendly web interfaces that make database compilation much easier and faster. In addition, HENDEL is being used not only by JCPRG but also by other data centres across the globe. The graph digitization system GSYS is another major tool that has been developed by JCPRG and is becoming the standard tool for compilation.

To accelerate data science, the free access to the data is required for the researchers of different multidisplinary fields. JCPRG's activities will continue in the future, not only for the global contribution of nuclear data but also for open science. I hope that the significance of all activities will be recognized.