6. Fusion Science Archives (FSA)

The Fusion Science Archives was established in 2005 to learn lessons from preserved past fusion science archives and to maintain collections of historical documents and materials that are related to fusion research in Japan. These activities are important from the viewpoint of the historical evaluation of fusion research, its social accountability, and making references for seeking future directions. Since then, historical materials on fusion research and/or organizations related to fusion research have been collected and preserved at the FSA. They are stored in acid-free folders and boxes. Catalogs of registered items are available to the public through the Internet in a hierarchical structure.

The following are summary of the collaborative works performed this fiscal year.

- **Construction of Digital Library of Husimi Kodi Archives**

  H. Iguchi (NIFS, FSA) *et al.*

  Research on the practical use of nuclear fission energy started in the 1950s. The first commercial nuclear power plant was put into operation in the early 1970s in Japan. On the other hand, nuclear fusion energy is still in the phase of research and development. Prospecting research and development in the future, it is useful or necessary to study the historical processes in fission energy development. Many historical documents related to the development of nuclear fission energy in Japan are archived as Kodi Husimi collections in NIFS Fusion Science Archives. The purpose of this research is to find related primary documents. Examples of the preliminary result are as follows with ID numbers of Fusion Science Archives. ○ "Energy Problem in Japan" published by Resources Council (Shigen-Chosakai; the governmental agency for research on energy problems in 1951 (FSA_ID:503-01). ○ Documents on Kaya-Husimi Proposal at Science Council in 1952 (FSA_ID:503-02-03, -05, 503-04-34). ○ Discussion at the 39th Committee on nuclear policy in early stage in Japan.

- **Studies on the history of the establishment of the Institute of Plasma Physics, Nagoya University**

  T. Amemiya (CST Nihon Univ.) *et al.*

  The Institute of Plasma Physics (IPP), Nagoya University is one of the previous bodies of the existing NIFS. In 1961, the IPP was established as the inter-university research institute of plasma physics and controlled fusion research in Japan. The purpose of this collaborative research is to find new historical interpretations of the IPP and the discussion about the Institute at the dawn of fusion research in Japan, based on the historical documents in NIFS FSA, CST Nihon University and other archives. This collaborative research of FY2022 consists of the following subjects: 1) "Analysis of the discussion about a proposal for the Institute of High Temperature in Osaka University at the dawn of fusion research in Japan", 2) "On the drafting and background of the plan for the IPP" and 3) "History of the establishment of the Nuclear Fusion Research Group from the perspective of research funds."

- **Improving name authority data about persons, groups, and organizations related to fusion science in Japan, for fusion science archives**

  H. Gotoh (The Kyoto University Museum) *et al.*

  This study aims to establish a methodology for improving archival name authority data related to fusion science in Japan, which is necessary for identifying names and of proper understanding of various materials. Information on researchers and visiting researchers at the Institute of Plasma Physics, Nagoya University (IPPJ), and groups or organizations that the researchers belonged to, was collected and analyzed (287 researchers and 80 visiting researchers; six groups and 55 organizations). The Fusion Science Archives staff also has attempted to extract the names of individuals and organizations that appear in the archival materials as part of the daily management of the archives. Further analysis of the extracted names and merging with the above information is still required.

- **Collaborative Activities at NIFS Fusion Science Archives (NIFS FSA)**

  S. Kubo (Chubu Univ.) *et al.*

  One of the topics of this fiscal year is that the catalog of a part of Kazuhisa MORI's collection accepted last year had been opened at the website of Yukawa Hall Archival Library, is being formally transferred and is agreed to be managed on the website of the NIFS-FSA web page. (https://www.nifs.ac.jp/archives/mori/index.html). A catalog of the non-cataloged part of this collection is underway.

  The cataloged database of more than 26,000 items are accumulated in the form of FileMaker of Claris Co., under hierarchy layers (Collection layer, Box layer, File layer, Item layer) for internal use. Among them, just under 6,000 items are available from outside NIFS in the form of InfoLib of Infocom Co., because the transformation of the database had been performed manually. A transformation program written in Python has been developed.

- **Investigation on the progress of plasma spectroscopy in Japan from the chronicle of collaboration meeting on plasma spectroscopy**

  N. Yamaguchi (Comprehensive Research Organization for Science and Society (CROSS)) *et al.*

  A collaborative meeting on plasma spectroscopy has been hosted by the Institute of Plasma Physics, Nagoya University (IPPJ), and NIFS for over half of a century since 1969. Programs, abstracts, and meeting reports of the workshop have been compiled. Keywords have been extracted from about 1300 papers that were presented at meetings held from 1969 to 2017. Three keywords which are "Laser-induced fluorescence (LIF) measurement", "Polarization spectroscopy" and "Collisional radiative (CR) model" have been analyzed. Their appearance frequency has been counted for the three keywords in each meeting. Statistics of the keyword appearance frequency show the trend of plasma spectroscopic research in Japan from 1969 to 2017.