

8. Activities of Rokkasho Research Center (RRC)

General Information on RRC

The Rokkasho Research Center (RRC, established in May 2007) promotes cooperation and joint research with the Broader Approach (BA) activities that are being undertaken in parallel with the ITER project and builds a technical foundation for the development of a prototype fusion reactor, by supporting the participation of collaborators of NIFS and universities, based on academic standpoints. The director of RRC serves as the leader of the general coordination group of the Joint Special Team for a Demonstration Fusion Reactor (DEMO) design, which is the organization of an all-Japan collaboration established in May 2015.

Furthermore, in order to promote the interdisciplinary expansion of issues being tackled in fusion research, we are focusing on disseminating research issues to a range of academic fields, inviting interdisciplinary meetings, and promoting interdisciplinary joint efforts. As an example, the fourth mid-term strategic project of the Research Organization of Information and Systems (ROIS), “Statistical-mathematical modeling for plasma data, complementary to plasma physics,” has been established and we are deepening/widening collaborations with communities involved in disciplines such as statistical-mathematics and data science.

In addition, we are actively working to contribute to human resource development based on the Graduate University for Advanced Studies (SOKENDAI), through establishing and deepening cooperation with neighboring educational institutions.

RRC’s Homepage: <https://www.nifs.ac.jp/en/about/rrc.html>

Highlighted Activities in FY2022

A number of individual collaboration research projects have been launched in the fields of nuclear fusion and statistical mathematics in order to extract useful information that can contribute to the promotion of fusion studies by making the most of large-scale/diverse data produced in nuclear fusion research. By aggregating them, the project, the Research Organization of Information and Systems (ROIS), the fourth mid-term strategic projects, “statistical-mathematical modelling on plasma data: complementary to plasma physics” was approved in FY2022, and NIFS RRC has been a research hub for promoting the project. The meeting for sharing research topics among those involved in fusion and statistical-mathematical research was held in Dec. 2022 at NIFS RRC/QST Rokkasho Institute and Hachinohe City Public Hall. This project has pursued synergetic development of both research communities by applying/improving a statistical-mathematical approach onto the fusion and plasma data. A report on the meeting was published in the Institute of Statistical Mathematics (ISM) News (No. 159, Feb. 2023) (in Japanese). The activities in FY2022 were highly evaluated in the ROIS Review Board, and a developmental extension was approved.

We are also promoting activities based on the SOKENDAI through promoting ties/collaborations with nearby educational institutions. In February 2023, the SOKENDAI Outreach Activities “training program for next-generation young researchers based the community at Aomori, in the Rokkasho area” was carried out by cooperation with the QST Rokkasho Institute. About 40 students of the National Institute of Technology (KOSEN), Hachinohe College, visited the Rokkasho site, and were conducted on a tour of cutting-edge facilities and had stimulating live discussions with researchers/engineers there.



Fig. 1 Group photo of the SOKENDAI Outreach Activities (at QST Rokkasho Institute).

We have created a clear file that incorporates the rich natural scenery of Rokkasho village. We are sure that visitors to RRC, from a wide range of academic fields either domestically or internationally, will recognize the beauty of Rokkasho village and Aomori Prefecture. The landscape photos (those published in the 2022 Rokkasho Village Handbook) were provided by the Rokkasho Village Office, and the wild bird photos were provided by Mr. Kazuaki Ichinohe (former executive officer of the Institute for Environmental Sciences, Public Interest Incorporated Foundation, located at Rokkasho Village).



Fig. 2 RRC clear files (3 types) created in FY2022.

(M. Yokoyama)