§4. Remote Participation for the Plasma Experiment with the Levitated Superconductor Coil by Use of SuperSINET System

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The experimental room of the High Temperature Plasma Center at the University of Tokyo is connected with the superconductor/cryogenic laboratory room at the National Institute for Fusion Science with the SuperSINET system. At the University of Tokyo the levitation experiment of the high-temperature superconductor(HTS) coil is carried out for exploring high beta plasmas. The HTS coil has been constructed in the collaboration with the superconductor/cryogenic group in NIFS. Remote experimental system between the University of Tokyo and NIFS is shown in Fig. 1.

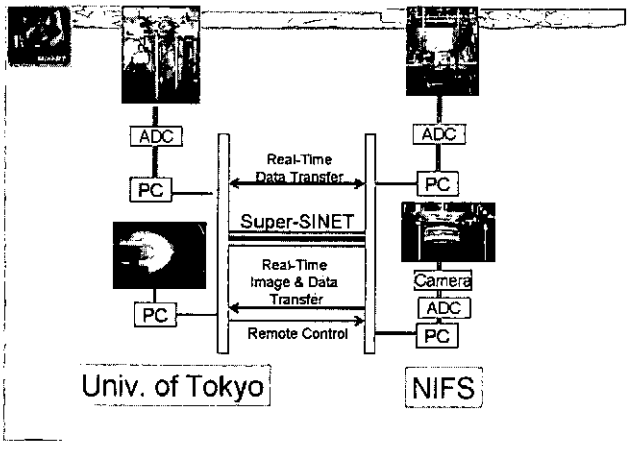

Fig. 1 SuperSINET system between the University of Tokyo and the NIFS.

The cooling and excitation systems of the Mini-RT device are not so reliable, because several new techniques have been introduced. While, members in the NIFS could not attend to the University of Tokyo so frequently in the operation phase of the Mini-RT device. Almost all of data for cooling and excitation are transferred to the NIFS in the real-time by use of SuperSINET system, and the condition of the HTS coil can be monitored at the NIFS laboratory room. A typical example of the data is shown in Fig.2.

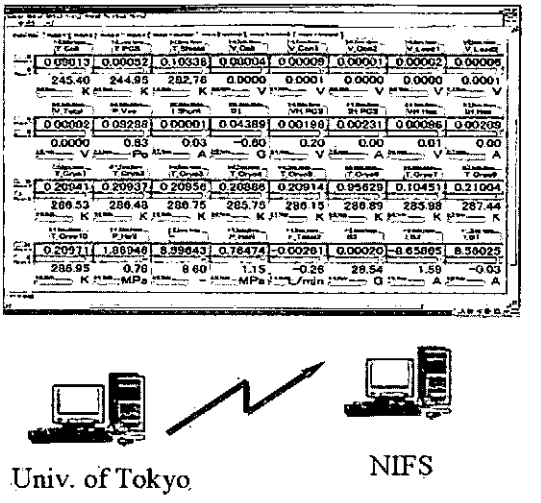

Fig. 2 Experimental data transferred from the University of Tokyo to the NIFS.

For the levitation experiment of the HTS coil the feedback control of the levitation coil is indispensable. We are planning to carry out the remote control experiment for the HTS coil levitation. A real-time fast transfer of the coil position data and/or coil position image are indispensable so as to carry out the remote control from the NIFS.

The SuperSINET system is very powerful not only for the research activity but also for remote participation. When many students of several high schools have visited the University of Tokyo, they have experienced the demonstration of the HTS coil levitation carried out at the NIFS by use of the SuperSINET system, as shown in Fig. 3.

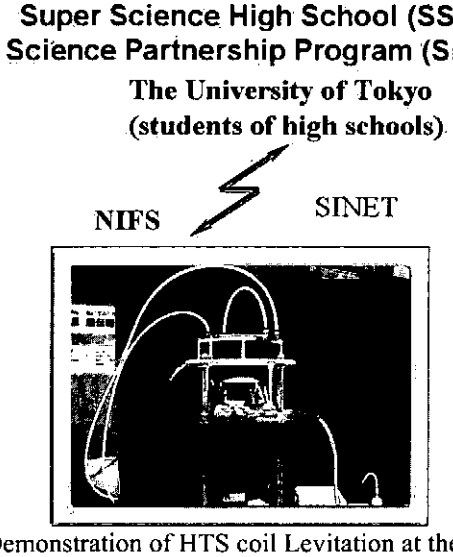

Fig. 3 Demonstration of HTS coil Levitation at the NIFS.