

2010/1/22: Neutron Program Advisory Committee

Program ID: 2009S06

Title: "Fundamental Research of Hydrogen Storage Mechanism with High-intensity Total Diffractometer"

Principal Investigator: Toshiya Otomo

Decision: continue

Beam allocation:  $\beta = 90\%$

Approval and suggestion(s) to IMSS: budget and resources

Only a running cost should be supplied.

Comments:

The research group of the program No. 2009S06 proposed to apply the the neutron sensitivity to hydrogen atoms for studying the hydrogen storage mechanism in materials aiming to contribute to find practically applicable hydrogen storage materials, as a part of the research program of The New Energy and Industrial Technology Development Organization (NEDO). The proposed research program involves the construction of the high-intensity total neutron scattering instrument at the BL21 of the J-PARC MLF, named as NOVA, for the neutron scattering in a wide q-range. The designed performance of the NOVA instrument provides almost the largest acceptance with almost flat sensitivity. The PAC recommends the IMSS of KEK to support this research program.

The NOVA is under the commissioning phase of the characterization of the incident beam and detectors and is expected to be entering to the operation phase in the fiscal year 2010. The list-mode data acquisition system with the resistive wire readout helium gas single proportional chambers and the gas-electron-multiplier-type (GEM) imaging detectors can be recognized as the common technique to all neutron scattering instruments. The PAC highly evaluates the installation experience of the list-mode data acquisition and corresponding data analysis system and recommends to support these R&D activities under a long-term vision of the IMSS of KEK.

The PAC accepts that the fraction of the beam time allocation opened to applications related to hydrogen storage studies amounting  $1-\beta=10\%$  taking into account the versatility of the NOVA instrument and readiness of the research program members to support the general users.