

Polarized ^3He Target Setup with Spin Exchange Method

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Polarized ^3He target plays an important role in studying form factor and spin structure function of neutron with spin-dependent electron scattering. It is also widely used in application, for example, as MRI and spin filter, etc. Presently we are developing polarized ^3He target using spin exchange optical pumping method. The vacuum and gas handling system was built for the glass cell filling. The construction and filling procedure of the target cell is important in determining the relaxation rates due to impurities in both glass and gases. The oven made of Teflon heats to 180 degree by using a forced hot air to vaporize the Rubidium for optical pumping. The NMR system has been constructed for polarization measurements of the polarized ^3He target. The investigation has been carried out to determine the polarization in polarized ^3He target by comparing the NMR signal height of ^3He and DPPH. We also present the preliminary results from study of thermal equilibrium signals of water.