

NMR System for Magnetic Field Measurements at the MARK-3 Free Electron Laser, G.V. KARPOV, A.S. MEDVEDKO, E.I. SHUBIN, N.I. ZINEVICH, BINP; C. DICKEY, J. MADEY, Duke University - In this paper we describe the Magnetometer and its applying for precise measurements of magnetic field in the magnets of the Mark-3 Free Electron laser. The Magnetometer operation principle is based on processing of the spin-echo signals, excited in the probes. The difficulty of the magnetic field measurements is connected with the height of the gaps (1.3 mm along one of the coordinates), in which the probes should be placed. Special tube probes have been designed to solve this problem. For the field strength of 2.5÷5 kGs and the field gradient in the probe volume of 0.1% per cm relative accuracy of ± 0.5 ppm has been achieved.