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Precision absolute polarimeter development for the 3He++ ion beam at 5.0-6.0 MeV energy. GRIGOR ATOIAN, ANDREI POBLAGUEV, ANATOLI ZELENSKI, Brookhaven National Lab. — There is opportunity for precision measurements of the absolute $^3He^{++}$ polarization at beam energies 5.0-6.0 MeV after the EBIS Linac. The analyzing power for the elastic scattering of spin-1/2 particles (^{3}He) on spin-0 particles (^{4}He) can reach the maximum theoretical value A_N =1 at some point (E_{beam}, θ_{CM}). The main effort of this R@D will be development of precision absolute polarimeter for the measurements of the $^3He^{++}$ beam polarization produced in the EBIS as a reference for the further polarization measurements along accelerator chain. The polarimeter vacuum system is integrated in the spin-rotator transport line. The $^3He^{++}$ ion beam will enter the scattering chamber through the thin window to minimize beam energy losses. The scattering chamber is filled with ^{4}He gas at ˜5 torr pressure. The silicon strip detectors will be used for energy and TOF measurements of the scattered ^{3}He and recoil ^{4}He nuclei (in coincidence) for the identification of the scattering kinematics.

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