The A2-collaboration at the Mainz Microtron MAMI is measuring photon absorption cross section using circularly and linearly polarized photons up to energies of 1.5GeV. The photons are produced in the ‘Bremsstrahlungs’ process, the energy is determined by a dedicated tagging system. In the years 2005/2006 the Crystal Ball detector with its unique capability to cope with multi photon final states was set up in Mainz.

Since 2010 the experimental apparatus has been completed by a polarized target. The horizontal dilution refrigerator of the Frozen-Spin Target has been constructed and is operated in close cooperation with the Joint Institute for Nuclear Research in Dubna, Russia. The system includes longitudinal or transverse superconducting holding coils to allow for all directions of polarization. Due to the low base temperature of 25mK of the cryostat very long relaxation times in the order of 1000-2000 hours for protons and deuterons could be reached.

In this talk technical achievements and the operation experience of the Mainz Frozen Spin Target will be emphasized. New developments to produce an internal superconducting polarizing coil for continuous DNP will be shown. In addition, we are investigating the possibility to get ‘active’ polarized target material in the cryostat to allow for a new class of threshold meson production and Compton scattering experiments.