

## Measurements of the transverse magnetization of a bulk MgB2 cylinder

*Tuesday, 11 September 2018 17:00 (20 minutes)*

An innovative magnetic solution is being pursued for inserting a transversely polarized target inside the central solenoid of the CLAS12 detector at Jefferson Lab, in order to measure transverse spin effect in SIDIS with the 11 GeV upgrade of CEBAF. A feasibility study of a bulk superconducting magnetic system is underway, to provide a transverse holding field for the target while compensating for the spectrometer field within the target volume and meeting the stringent requirements of geometry, compactness and material budget imposed by the high-energy measurements. We review a bench test in which a cylinder of MgB<sub>2</sub> is conductively cooled by a cold head, temperature controlled by a heater and magnetized by external resistive coils. The transverse magnetization of a bulk MgB<sub>2</sub> cylinder has been studied, along with its magnetic shielding efficiency. Updated results will be reported, along with the corresponding long-term stability performance.

**Primary author:** STATERA, Marco (MI)

**Co-authors:** Dr SANDORFI, Andrew (Jefferson Lab); CIULLO, Giuseppe (FE); TAGLIENTE, Giuseppe (BA); BALOSSINO, Ilaria (FE); Dr BARION, Luca (FE); CONTALBRIGO, Marco (FE); Dr LOWRY, Michael (Jefferson Lab); LENISA, Paolo (FE)

**Presenter:** STATERA, Marco (MI)

**Session Classification:** Polarized Ion and Lepton Sources and Targets

**Track Classification:** Polarized Ion and Lepton Sources and Targets