Abstract Submitted for the DNP11 Meeting of The American Physical Society

Non-Uniform Electromagnetic Fields in the SAMURAI TPC<sup>1</sup> J. ESTEE, J. BARNEY, Z. CHAJECKI, C.F. CHAN, J.W. DUNN, J. GILBERT, F. LU, W.G. LYNCH, R. SHANE, M.B. TSANG, NSCL, Michigan State University, A.B. MCINTOSH, S.J. YENNELLO, Texas A&M University Cyclotron Institute, M. FAMIANO, Western Michigan University, T. ISOBE, H. SAKURAI, A. TAKE-TANI, RIKEN, Japan, T. MURAKAMI, Kyoto University, SAMURAI-TPC COL-LABORATION — A Time Projection Chamber (TPC) is being developed for the SAMURAI dipole magnet at RIKEN. The main scientific objective for the TPC is to provide constraints on the nuclear symmetry at supra-saturation density. The poster presentation will discuss the design of the TPC field cage and the external electrodes that shape the high electric fields near the cathode. Garfield calculations of the electric field as well as TOSCA calculations of the magnetic field of the SAMURAI dipole will be shown and the impact of the non-uniformity of both fields on electron transport will be discussed. These non-uniformities can introduce components into the electron drift velocity in directions other than the expected vertical direction. This poster presentation will discuss the initial design of a laser calibration system, which will be used to calibrate away the influence of these non-uniformities in the electric and magnetic fields.

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