

A study of the behavior in magnetic field of fine mesh photomultiplier tubes (Hamamatsu R5946), for the TOF system of the AMS-02 space experiment

L. Baldini¹, L. Brocco¹, D. Casadei¹, G. Castellini², F. Cindolo¹, A. Contin¹, G. Laurenti¹, G. Levi¹, F. Palmonari¹, L. Patuelli¹, C. Sbarra¹, and A. Zichichi¹

¹INFN, Bologna, Italy

²CNR-IROE, Florence, Italy

Abstract. Some Hamamatsu R5946 photomultiplier tubes have been tested in magnetic field, in view of their use in the TOF system of AMS-02 experiment, a cosmic ray spectrometer to be operated in space after 2003. The PMTs are shown to be rather insensitive to the magnetic field up to about 4kG

at angles between the field direction and tube axis up to about 30 degrees. A simulation of the fine mesh time response has been also made : assumptions and results are shown, in good agreement with the data.