Contribution ID: **96** Type: **oral**

Precision Measurement of Periodicities in the Daily Proton Fluxes with the Alpha Magnetic Spectrometer

Tuesday, 26 July 2022 16:15 (15 minutes)

The precision measurement of daily proton fluxes with AMS during ten years of operation in the rigidity interval from 1 to 100 GV is presented. The proton fluxes exhibit variations on multiple time scales. From 2014 to 2018, we observed recurrent flux variations with a period of 27 days. Shorter periods of 9 days and 13.5 days are observed in 2016. The strength of all three periodicities changes with time and rigidity. Unexpectedly, the strength of 9-day and 13.5-day periodicities increases with increasing rigidities up to ˜10 GV and ˜20 GV respectively. Then the strength of the periodicities decreases with increasing rigidity up to 100 GV.

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Session Classification: Parallel 2

Track Classification: SH