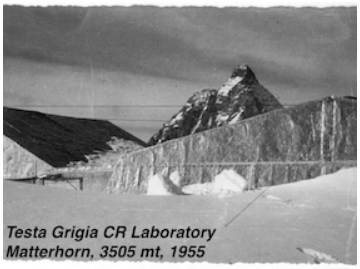

Contribution ID: **42** Type: **oral**

Galactic Cosmic Ray Proton Spectra during Solar Cycle 23 and 24 - Measurement Capabilities of the Electron Proton Helium Telescope on Board SOHO

Monday, 5 September 2016 16:45 (15 minutes)

Measurements of the galactic cosmic ray (GCR) spectra near Earth over timescales of a solar cycle are crucial in order to understand the solar modulation of these particles. While the more recent, sophisticated instruments like AMS and PAMELA provided high precision data of these spectra, they can only provide long-term measurements in the near future. On the other side, the Electron Proton Helium INstrument (EPHIN) onboard SOHO provides data for 20 years but is limited to proton energies below 50 MeV.
In order to overcome this limitation, we developed a method to extend the energy range of the SOHO/EPHIN to energies between ~250 MeV and 1.6 GeV for protons using GEANT4 Monte Carlo simulations of the instrument.
The derived spectra are validated against results from AMS, BESS and PAMELA. As a result, we present annual galactic cosmic ray proton spectra from 1995 to 2015.
This project has received funding from the European Union's Horizon 2020
research and innovation programme under grant agreement No 637324.

Primary author: Mr KÜHL, Patrick (University of Kiel)

Co-authors: Dr KLASSEN, Andreas (University of Kiel); Prof. HEBER, Bernd (University of Kiel); Mr GIESELER, Jan (University of Kiel); Dr DRESING, Nina (University of Kiel)

Presenter: Mr KÜHL, Patrick (University of Kiel)

Session Classification: Parallel