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Testing Charge-, Sign- and Energy-Dependence of Cosmic-Ray Solar Modulation with AMS-02 Observations During Cycles 23 and 24
IAN MCKINNON, ILIAS CHOLIS, Oakland University, DAN HOOPER, Fermi National Accelerator Laboratory, TIM LINDEN, Stockholm University and the Oskar Klein Centre — Our basic theoretical understanding of the sources of cosmic rays and their propagation through the interstellar medium is hindered by the Sun, that through the solar wind affects the observed cosmic-ray spectra. This effect is known as solar modulation. However recently released cosmic-ray data and publicly available measurements of the solar wind properties from ACS and the Wilcox observatory allow us to test the analytical modeling of the time-, charge- and energy-dependence of solar modulation. Using the well-established time-dependence of solar modulation we find evidence for its charge and energy dependence.

Ian McKinnon
Oakland University

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