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Solar modulation of the helium nuclei during the period from 2006 to 2014 with the PAMELA space experiment

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Precision measurements of the Z = 2 component in the cosmic radiation provide crucial information about the origin and propagation of the second most abundant hadronic species in cosmic rays inside the Galaxy. Moreover, the solar modulation of light-nuclei like helium can be compared to the widely studied modulation of protons, to spot possible dependencies on charge and mass; such nuclei undergo different processes with respect to Z = 1 particles and this could be reflected on a difference in propagation parameters. The helium nuclei spectra measured by PAMELA down to 80 MeV from July 2006 to September 2014 over a three-months time basis are hereby presented, offering a detailed insight of Z = 2 particles behavior in both solar cycle 23rd and 24th.

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