

HAWC measurements of the energy spectra of cosmic ray protons, helium and heavy nuclei in the TeV range

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Description of the analysis

• We have unfolded the elemental energy spectra for H, He and heavy nuclei (Z >2) for E (per particle) = [10, 251] TeV from a high-statistical sample of HAWC data.

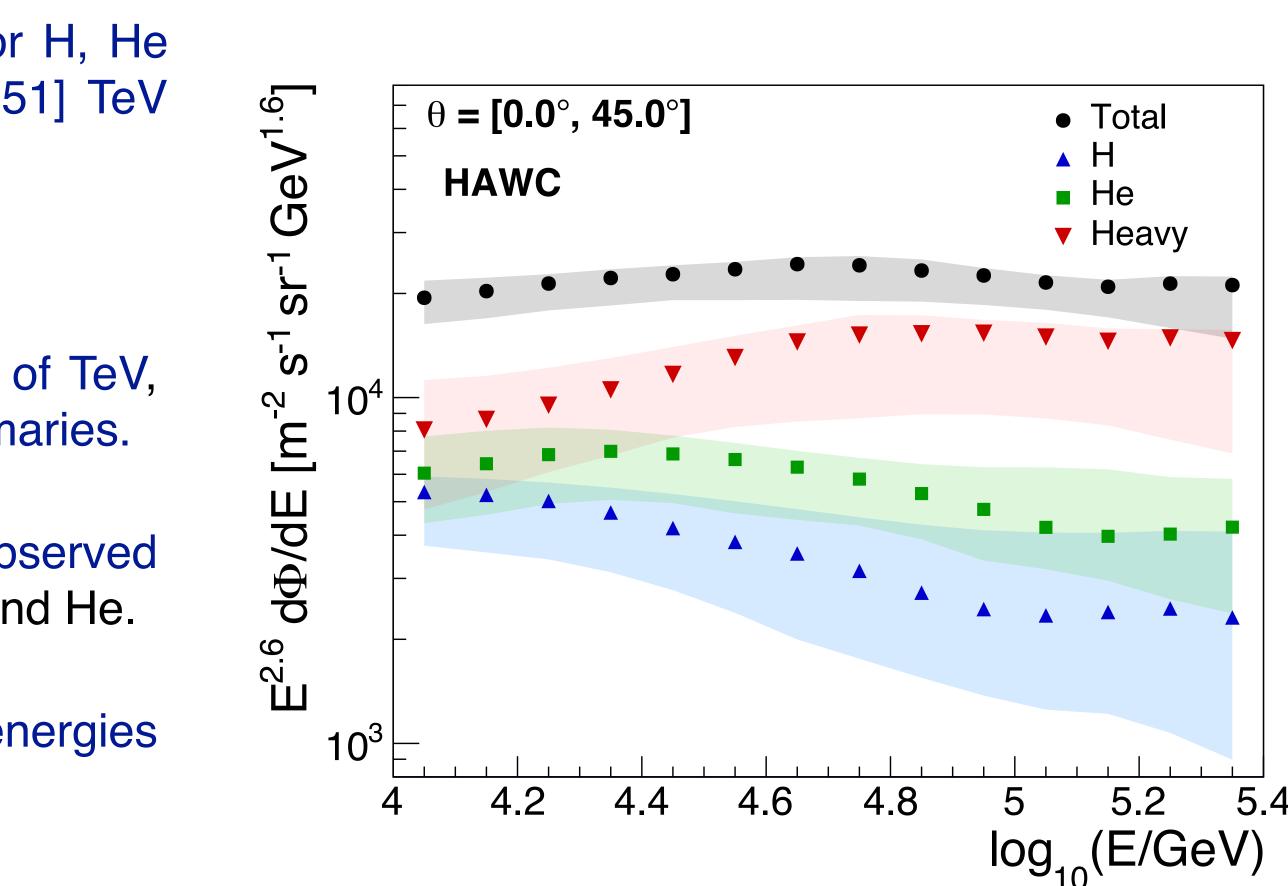
<u>Results</u>

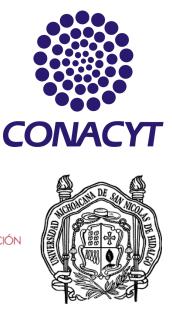
• HAWC results reveal individual softenings at tens of TeV, whose positions move to higher energies for heavy primaries.

• HAWC confirms the TeV knee-like features observed recently by DAMPE (2019&2021) for the spectra of H and He.

• Cosmic ray composition becomes heavier at high energies within the primary energy range 10 - 100 TeV.

• HAWC hints to possible hardenings close to 100 TeV in the spectra of H and He.





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