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## **The energy interval above the ankle where the cosmic radiation consists only of ultraheavy nuclei from Zinc to the actinides**

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According to recent measurements the tendency of the chemical composition above the ankle is characterized by increasing fractions of intermediate and heavy nuclei and a dominance of light nuclei around the ankle featured by a minimum of the  $\log(A)$  profile. Calculations of the chemical composition in the range  $3.5 \times 10^{18}$ - $5 \times 10^{19}$  eV according to new principles are reported and compared with the experimental data. The calculation outcomes explain both the rising tendency and the minimum of  $\log(A)$ . The estimate is prolonged to the adjacent interval  $5 \times 10^{19}$ - $10^{21}$  eV using the same theoretical background and some features of the cosmic-ray spectrum at the maximum observed energies. It results that above the energy of  $6.7 \times 10^{20}$  eV **the cosmic radiation consists only of nuclei heavier than Zinc with a rate of  $(1-5) \times 10^{-34}$  particles/m<sup>2</sup> s sr GeV**. The support of the data on this last estimate is debated.

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