

Results on mass composition of cosmic rays as measured with LOFAR

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We present an updated analysis of the mass composition of cosmic rays in the 10^{17} to 10^{18} eV energy range. It is based on radio measurements of the depth of shower maximum X_{\max} , done with the LOFAR telescope. We review the improvements to the reconstruction setup based on Corsika/CoREAS simulations, as well as the selection method to obtain a minimally biased X_{\max} -dataset. Systematic uncertainties on X_{\max} have been lowered to an estimated 7 to 9 g/cm², at a resolution of 20 g/cm² per shower. Results include estimates of the mean and standard deviation of the X_{\max} -distribution. A statistical analysis at distribution level has been done as well, using a four-component model of light to heavy nuclei. It confirms our previous results showing a significant low-mass fraction in this energy range. We discuss consistency with existing results on X_{\max} and mass composition.

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