

Composition of the ankle

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J. Abraham et al., Phys. Rev.Lett.104:091101, 2010

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J. Abraham et al., Phys. Rev.Lett.104:091101, 2010





Pierre Auger Collaboration, D.Martello et al., Scineghe VII, Oct. Conference-Assisi-Italy, 2009



R.U. Abbasi et al., Astropart. Phys. 30:175-179,2008.





















$1 \times 10^{17} \text{eV}$











$1\times 10^{18} \text{eV}$











 $1 \times 10^{19} \text{eV}$









 10^{20} - 10^{21} eV













p – 3% He – 30% CNO – 7% Ne-Si – 30%

Fe - 30%



sources at the GC region

p – 3% He – 30% CNO – 7% Ne-Si – 30%

Fe - 30%



sources at the Cygnus region



















10¹⁹ eV













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E(eV)















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10¹⁸



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sources distributed as SNR























