



## RESEARCH

### AMS: EVEN COSMIC RAYS HAVE A WEIGHT

The measurements of the AMS-02 experiment carried out on the International Space Station (ISS) have improved the knowledge of the properties of cosmic rays by detecting subtle differences between heavy and light rays, thus providing new opportunities for understanding the origins and propagation of cosmic particles. Indeed, the scientific collaboration of the

AMS experiment recently published a new high-precision measurement of the abundance and shape of the primary neon, magnesium and silicon cosmic ray flux spectrum in *Physical Review Letters*. The analysis of the properties of this class of cosmic rays, less abundant than other lighter primaries such as helium, carbon and oxygen, provides unique information for studying their astrophysical sources in the Galaxy and for understanding the mechanisms of their propagation in the interstellar medium and detection in the Solar System. In fact, neon, magnesium and silicon cosmic rays show a similar dependence of their intensity according to energy, which is, however, different from that characteristic of lighter primary cosmic rays, thus highlighting that there are different classes of primary cosmic rays with different properties. The research, which was indicated as the Editor's suggestion by PRL, was carried out as part of an international collaboration in which researchers from INFN, the Universities of Bologna, Milan Bicocca, Perugia, Rome Sapienza, Rome Tor Vergata and Trento and the Italian Space Agency (ASI) are participating for Italy. ■