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The Physical problems that exist on AMS

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Since the invention of AMS, many scientific and technological problems in the natural sciences have been solved. However, there are still many problems that cannot be solved so far, such as (1) the measurement of inert gases; (2) higher or lower abundance isotopes, such as 10-16-10-18 or 10-8-10-11; (3) On-line measurements, such as CO₂ on-line measurement; (4) Simultaneous measurement of high-precision stable isotopes, such as 16O, 17O, 18O; (5) Measurement of impurity content in ultra-pure materials (ppt-ppq range of semiconductor materials), etc. In order to achieve the measurement of the above problems, it is necessary to recognize the physical problems that exist in the AMS. This report will analyze these physical problems in detail, such as those on tandem accelerators, ion sources, and injectors, in order to develop new AMS instrument technologies.

Student Submission

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