



Development of Mass Spectrometers to measure Energetic Neutral Atoms

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For more than 40 years the Physical Institute of the University of Bern is active in space flight instrumentation. What started in the late 60ies with foil experiments to collect solar wind particles on Apollo missions grew quickly into development of mass spectrometers for multiple space missions, such as GEOS, GIOTTO, ULYSSES, SOHO, ROSETTA, and more.

In the past 15 years, the division for Space Research and Planetary Sciences of the Physical Institute of the University of Bern gained special experience in development of mass spectrometers, which were designed to measure Energetic Neutral Atoms (ENA) on planetary as well as interplanetary missions. As a result, such mass spectrometers were already flown on IBEX and Chandrayaan-1, among others, and were chosen to be part of future missions, such as BepiColombo and JUICE.

This report will focus on the development of mass spectrometers for ENA. We will explain the working principle, briefly highlight the up to now achieved most relevant scientific findings and also explain why measurements of ENA are so important.