



## **The Neutral Gas and Ion Mass Spectrometer of the PEP Experiment on the JUICE Mission**

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The Neutral Gas and Ion Mass (NIM) spectrometer is one of the six scientific instruments of the Particle Environment Package (PEP) experiment on the JUperiter and ICy Moons Explorer (JUICE) Mission of ESA. NIM will measure the chemical, elemental, and isotopic composition of the neutral and ionised fraction of the exospheres of Europa, Ganymede, and Callisto, during several flybys and finally in orbit of Ganymede. NIM is a time-of-flight mass spectrometer with high mass resolution ( $m/\Delta m \approx 1000$ ), high sensitivity ( $1 \text{ cm}^{-3}$  for 1 sec integration), that measures full mass spectra from 1 – 1000 u/e at high cadence.

Addressing the particular requirements of the JUICE mission we developed the mass spectrometer, built a prototype instrument, and verified its measurement performance for the many flyby scenarios of the icy moons and for the orbit phase around Ganymede. We will present the design of the instrument, and its achieved performance in our calibration facilities.