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Advanced Ion Mass Spectrometer for Giant Planet Ionosphere, Magnetospheres and Moons EDWARD SITTLER, JOHN COOPER, NICK PASCHALIDIS, SARAH JONES, WILLIAM BRINKERHOFF, WILLIAM PATTERSON, NASA Goddard Space Flight Center, ASHRAF ALI, Space System and Applications, Inc., MICHAEL COPLAN, DENNIS CHORNAY, University of Maryland College Park, STEVE STURNER, MEHDI BENNA, University of Maryland Baltimore County, FRED BATEMAN, National Institute of Standards and Technology, DOMINIQUE FONTAINE, CHRISTOPHE VERDEIL, Laboratoire de Physique des Plasmas, NICOLAS ANDRE, MICHEL BLANC, Institute Recherche en Astrophysique et Planetologie, PETER WURZ, University of Bern — We present our Advanced Ion Mass Spectrometer (AIMS) for outer planet missions which has been under development from various NASA sources (NASA Living with a Star Instrument Development (LWSID), NASA Astrobiology Instrument Development (ASTID), NASA Goddard Internal Research and Development (IRAD)s) to measure elemental, isotopic, and simple molecular composition abundances of 1 V to 25 kV hot ions with wide field-of-view (FOV) in the 1 – 60 amu mass range at mass resolution $M/\Delta M \leq 60$ over a wide dynamic range of particle intensities and penetrating radiation background from the inner magnetospheres of Jupiter and Saturn to the outer magnetospheric boundary regions and the upstream solar wind. This instrument will work for both spinning spacecraft and 3-axis stabilized spacecraft. AIMS will measure the ion velocity distribution functions (VDF) for the individual ion species from which velocity moments will give their ion density, flow velocity and temperature.

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