



The Jovian Plasma Dynamics and Composition Analyzer for the Particle Environment Package on JUICE

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The Jovian plasma Dynamics and Composition analyzer (JDC) is one of six sensors of Particle Environment Package (PEP) on ESA's JUICE mission to Jupiter. JDC measures 3D distribution functions of positive and negative ions in the energy range 1eV per charge to 41keV per charge. The sensor measures simultaneously using a high sensitivity-low mass resolution and a lower sensitivity-high mass resolution channel and has the additional capability to measure electrons. Instrument mass constraints and the jovian radiation environment drive the design of the sensor: radiation shielding, detectors and coincidence systems are optimized for the plasma and radiation environment to be expected during the JUICE mission while keeping the sensor mass within allocated limits. We present the JDC sensor principle and design and its predicted performance in the jovian environment and compare to laboratory measurements from JDC sensor prototypes.