



High energy heavy ion zones within the inner edge of Jupiter's relativistic electron belt

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(1) Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, United States (heidi.n.becker@jpl.nasa.gov), (2) Southwest Research Institute, San Antonio, TX, United States, (3) Space Research Corporation, Annapolis, MD, United States, (4) NASA Goddard Space Flight Center, Greenbelt, MD, United States

Juno's Radiation Monitoring (RM) Investigation measures the high-energy particle environment at Jupiter. Images and housekeeping data from Juno's heavily shielded instruments are actively retrieved and analyzed to extract the characteristic signatures of penetrating high-energy electrons and ions [Becker, H.N., et al. (2017), *Space Sci Rev*, doi: 10.1007/s11214-017-0345-9; Becker, H.N. et al. (2017), *Geophys. Res. Lett.*, 44, doi:10.1002/2017GL073091]. RM has discovered signatures of a high energy ion population (>100 MeV/nucleon) within the inner edges of Jupiter's relativistic electron belt, revealed by extremely high noise signatures in images collected with Juno's Stellar Reference Unit star camera [Becker, H.N., et al. (2018) in prep]. The particles are concentrated within narrow zones of the high-latitude lobes of the synchrotron emission region, in locations never explored by prior spacecraft.

This paper presents the location of these new radiation zones, our analysis of the species and energies which may be responsible for these signatures, and our study of their possible origin.

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