Abstract Submitted for the DPP14 Meeting of The American Physical Society

Frontiers of Radiation Belt Physics LOUIS LANZEROTTI, New Jersey Institute of Technology — The discovery of trapped radiation around Earth by James Van Allen in 1958 revolutionized concepts of Earth's space environment, and its relationship to solar activity. Coming in the same era as the declassification of research in laboratory plasma physics, concepts and theories in space and laboratory plasma environments have grown in parallel, sometimes building upon one another and at times diverging with little overlap. The launch of the dual spacecraft NASA Van Allen Probes mission (August 2012) has opened a fresh era in understanding of Earth's space plasma environment, and has stimulated new opportunities for collaborative interactions between laboratory and space plasma researchers. This talk will outline some past history of space plasma research, and will describe some of the latest developments in new understandings achieved by data from the Van Allen Probes.

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Date submitted: 10 Jul 2014

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