



Legacy of Richard M. Thorne: Search for the loss and source mechanisms in the Earth Van Allen radiation belts.

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Richard Thorne together with Larry Lyons and Charlie Kennel in a series of studies explained the two-zone structure of the radiation belts. As a young graduate student of Richard Thorne, I picked up where they left off. Together with Richard Thorne and in collaboration with a number of researchers around the world, we have added temporal dependence to the equation and extended codes to multi-dimensional modeling that allowed us to model the dynamic evolution of the belts. This modeling helped identify the critical mechanisms of acceleration and loss of relativistic and more recently ultra-relativistic electrons in the radiation belts. I will give an overview of this research and discuss, how the understanding of the critical processes involved over time as modeling tools matured and a wide range of observations became available.