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Statistics of Zebra stripes at Saturn magnetosphere

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Multi bands electron flux enhancement are found via Cassini /LEMMS PHA measurements. The enhancement extends extremely large Lshells from L=10 to even L=5 at energy from 100 keV to 1 MeV, which is quite different from previously recognized injection events at Saturn but similar to Zebra Stripes identified at Earth. Cases are presented by Hao et al showing the evolution of a Zebra Stripe event, and statistics here will show the spatial distribution of stripe events. The result shows that Zebra Stripe is indeed universal at Saturnian inner magnetosphere, although there exists a day-to-night asymmetry. The evolution time of stripes observed by Cassini is around 40 hours indicating the occurrence frequency of impulsive electric field which lead to this convection process. The existence of Zebra Stripes provides an insight into the formation and dynamics of giant planets' radiation belts and magnetosphere.