



An experimental and theoretical study of the wide band non-thermal continuum radiation generation

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Non-thermal continuum (NTC) radiation is, with auroral kilometric radiation, one of the two electromagnetic emissions generated within the Earth's magnetosphere and radiated into space. It is generally believed that NTC is emitted at the plasmopause density gradient, close to the magnetic equator, and with a narrow-band spectral signature. We present a specific type of NTC event, which appears as wide bands in the spectrograms recorded by the CLUSTER spacecraft. Similar events were infrequently observed by the WHISPER wave instrument. This NTC comes from several sources located in the plasmopause density gradient, at medium magnetic latitude and where $f_{pe} = n_{fce}$. It may have a different mechanism of generation than the "classical" NTC. In this presentation, we present an analysis that indicates that the wave is emitted by a group of sources, and that these waves mix close to the source region. The observed polarization is consistent with propagation in the left hand mode but measurements in the source region indicate that parallel propagating waves cannot be directly generated by a non-relativistic process from the observed electron populations.