



## **Electromagnetic signatures inside the Ionospheric equatorial plasma bubble: CHAMP observation and theoretical framework**

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The equatorial ionospheric F region often becomes unstable during evening-time and gives rise to large plasma depletion or plasma bubble. In this work, CHAMP observations of electromagnetic fluctuations inside the plasma bubbles will be presented. To study the possible cause for these fluctuations, hydro-magnetic framework is adopted where growth equation for polarization electric field and density fluctuation will be derived. To excite the magnetic fluctuation inside the plasma bubble, the possible contribution from current driven by polarization electric field and density gradient will be examined.