

*Contributed talk*

## DISTRIBUTION OF RADIO SPECTRAL INDEX OVER THE LUPUS LOOP

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We use all-sky surveys at 408 and 1420 MHz with aim to investigate properties of the Galactic radio source Lupus Loop. We estimate the brightness temperature, surface brightness and radio spectral index of this supernova remnant using the method we have developed. The non-thermal nature of its radiation is confirmed, and also the distribution of spectral index over its area is given.

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## ON MHD WAVE COUPLING BETWEEN TERRESTRIAL IONOSPHERE AND MAGNETOSPHERE

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We model the terrestrial ionosphere-magnetosphere system by a high plasma- $\beta$  (low magnetic field) isothermal region separated by a horizontal boundary from a low plasma- $\beta$  (strong magnetic field) domain above it. Perturbations induced by sudden impacts of the solar wind can generate MHD perturbations in the magnetosphere (the low plasma- $\beta$  domain) that propagate downward and through the boundary into the ionosphere (the high plasma- $\beta$  domain). Applying the VLF (very low frequency) technique, we are able to identify such hydrodynamic waves in the ionosphere by computation of characteristic oscillation spectra from amplitudes of reflected VLF radio-waves recorded in real time. As not all MHD waves can cross from the magnetosphere into the ionosphere, we present in this contribution the mathematical conditions required for MHD waves to enter the ionosphere and enable a magnetosphere-ionosphere coupling mechanism.