

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

A Study of a Pulsar Pumped Cavity at Longitude $+36^\circ$ AATMA
TIWARI, Mahendra Morang Adrash Multiple Campus, Biratnagar. (Tribhuvan University) — A systematic search of cavity like structure in far infrared ($100\ \mu\text{m}$ and $60\ \mu\text{m}$) IRAS (Infrared Astronomical Satellite) survey was performed by using sky view virtual observatory. In order to find the isolated cavity like structure not studied yet, we used SIMBAD database to locate discrete source in the region. A cavity like structure (size $\sim 3.9\ \text{pc} \times 2.5\ \text{pc}$) was found around the coordinate of R.A. (J2000) $20^h\ 38^m\ 12^s$ and Dec (J2000) $30^\circ\ 19'\ 25''$ at distance of 450 pc. In this present work we have studied the flux density and temperature variation within the structure. We found that the variation of temperature from 20.8K to 28.8K within offset of 8K (greater than 5K) suggesting that the cavity is either very deep or might be formed due to interaction of pulsar with interstellar medium. The mass profile of each pixel of the region of interest was calculated with the help of this temperature. Similarly, the excess mass is calculated and mass deficit per pixel within the region of interest was found to be 1.1×10^{26} Kg. The amount of energy of the pulsar to create that inhomogeneity in structure is calculated to be 2.2×10^{40} Joule.

Aatma Tiwari
Mahendra Morang Adrash Multiple Campus, Biratnagar. (Tribhuvan University)

Date submitted: 14 Jan 2020

Electronic form version 1.4