

## POSSIBLE ORIGIN OF THE ANOMALOUS COMPONENT OF COSMIC RAYS

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## ABSTRACT

In this work we have studied the possible origin of the anomalous cosmic rays (ACR) in terms of stellar wind injection from O-type stars and their acceleration in shock fronts of SNR's. This is in continuation of our earlier work (Biswas, Durgaprasad, and Trevedi, Proc. Ind. Acad. Sci. 1981) in which we estimated that heavy ions of  $\text{He}^{+2}$ ,  $\text{O}^{+4}$ , etc. of energy 10-100 KeV/N from the stellar wind will travel a distance of the order of  $(1-5) \times 10^2$  pc in a hot and thin ISM. We assume that a fraction of these will encounter interstellar shock fronts of SNR's and these are accelerated to about 5-100 MeV/N and give rise to ACR's. Typically these ions would travel a distance of the order of a few  $10^3$  pc. Therefore we estimate that O-type stars in a volume of radius of a few Kpc around the solar system are contributing to the intensity of ACR in the local ISM. From observational data, the intensity of ACR in the local ISM is estimated. It is suggested that these ACR ions enter the solar system along the solar dipole field lines connected to the interplanetary magnetic field lines.