

## THE MAGNETIC FIELD OF THE GALAXY IN THE SOLAR VICINITY AND THE POLARIZATION OF STARS

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The results of a study of the magnetic field of the Galaxy up to ~3.5 kpc from the Sun by the analysis of interstellar polarization of optical radiation of catalogue stars (Mathewson et al., 1978) are presented. For the regions  $90^\circ < \ell < 180^\circ$  and  $300^\circ < \ell < 360^\circ$ , where the polarization degree P is maximum, the empirical form

$$P_i = AR_i |\cos(\ell - \ell_0)| + BR_i^{1/2}$$

is found.

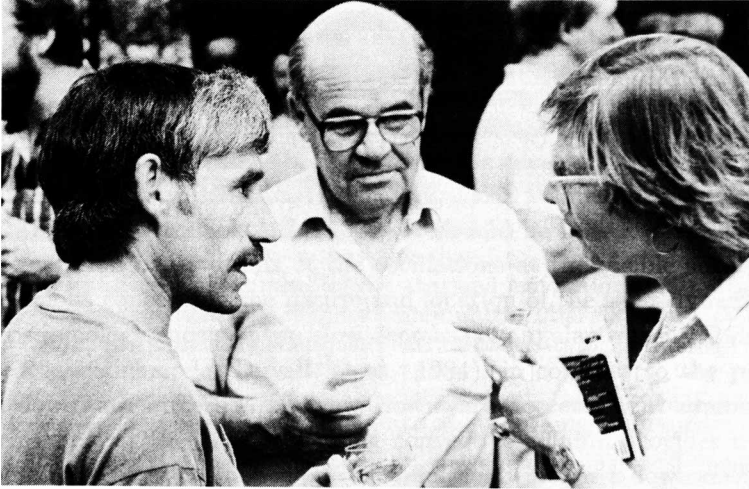
For the directions of some spiral arm magnetic fields (taking into account the model representation of Sofue and Fujimoto (1983)) the following values are determined: for Perseus to  $\ell \approx 90^\circ$ ; Sagittarius-Carina from  $\ell \approx 45^\circ$  to  $\ell \approx 280^\circ$ ; Local Arm to  $\ell \approx 80-90^\circ$ .

Thus, the earlier existing difference of opinion about the direction of the magnetic field of the Galaxy can be removed if we consider the direction  $\ell \approx 45^\circ$  as the direction of the Sagittarius-Carina arm and  $\ell \approx 90^\circ$  as the direction of the Perseus and local spiral arms. These directions are obtained on the basis of interstellar polarization data ( $\ell \approx 45^\circ$ ) and on the Faraday rotation measurements of extragalactic radio sources ( $\ell \approx 90^\circ$ ).

Besides, it is supposed that there is the gaseous dust bar between the Perseus and Sagittarius-Carina arms (Andreassian and Makarov, 1989) from  $\ell = 315^\circ$  (the northern hemisphere) to  $\ell = 135^\circ$  (the southern hemisphere) at  $R \approx 1$  kpc with an inclination to the plane of the Galaxy of  $\alpha = 10^\circ-15^\circ$ .

### References

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