**Diffuse Interstellar Bands as a tracer of warp in the Third Galactic Quadrant**

A. N. Istiqomah1, L. Puspitarini2, M. I. Arifyanto2

1 Undergraduate Program, Astronomy Study Program, Institut Teknologi Bandung, Bandung, Indonesia  
2Astronomy Research Division and Bosscha Observatory, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Bandung, Indonesia

ABSTRACT

Galactic warp, a misalignment between inner and outer Galactic disk, can be identified with the help of stellar and interstellar matter distribution. Even though it is present in the First and Third Galactic Quadrant, Galactic warp is most prominent in the latter part of the Galaxy. However, warp identification is still constrained by the fact that our survey is limited in distance and many parts of the Galaxy remain unreachable. Diffuse interstellar bands, a set of absorption features originated from interstellar region, is considered useful to investigate the warp as it is ubiquitous and not easily saturated.

Gaia-ESO Spectroscopic Survey (GES) [1], a high resolution (R ~ 47,000) spectroscopic survey of stars from different population in the Galaxy, delivers promising material to alters current knowledge of the Milky Way. The ground-based survey performs as a complement to Gaia mission. With the Gaia Data Release 2 recently available [2], which provide accurate parallax measurement with uncertainties up to 1 mas at G = 20, these two will bring the study of Galactic structure to another level.

The goal of this work is to analyze the line strength of one of the strong diffuse interstellar bands, 6614 Å, and to discover its spatial distribution. About a thousand stellar spectra (SNR > 50) from well-distributed stars along Galactic latitude in the Third Galactic Quadrant (180º ≤ *l* ≤ 270º) are used. The dataset consists of dwarfs to sub-giants ( 3.0 ≤  *log g* ≤ 5.0) cool star (3800 K ≤ Teff ≤ 8000 K) spectra, with wide-span metallicity (-1.50 ≤ [M/H] ≤ +1.00). Synthetic stellar spectra, computed by SPECTRUM [3] with input from MARCS model atmosphere [4], are used to distinguish interstellar lines from stellar lines. Correction of telluric lines is applied if necessary.

*Keywords: Galactic warp; Interstellar Matter; Diffuse Interstellar Bands*

References

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