

4.5 TO 11.7 MICRONS SPECTROPHOTOMETRIC OBSERVATIONS OF THE GALACTIC BULGE BY THE MIRS/IRTS

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Abstract. Using the Mid-Infrared (MIRS) on board the Infrared Telescope in Space (IRTS) we obtained the 4.5 to 11.7 μm spectra of the stellar populations and diffuse interstellar medium in the Galactic bulge ($l \approx 8.7^\circ$, $b \approx 2.9, 4.0, 4.7,$ and 5.7°). Below galactic latitude of 4.0° the mid-infrared background spectra in the bulge are similar to the spectrum of M and K giants. The UIR bands (6.2, 7.7, 8.6, and 11.3 μm) are also detected in these regions and they are likely arising from the diffuse interstellar medium in the bulge. Above galactic latitude of 4.0° , the mid-infrared background spectra are similar to the spectrum of those evolved stars with high mass-loss rate detected by IRAS. One likely interpretation is that this background emission arises predominantly from these stars with very low luminosities that have not been detected by IRAS. The main-sequence life time for such low luminosity evolved stars is at least 10 Gyr, even in the metal poor cases. If these low luminosity evolved stars are metal-rich then the age would be much older. Thus, the existence of a large number (~ 75) of such low luminosity evolved stars in a small region ($8' \times 8'$) in the bulge would have significant impact on our understanding of the stellar content and the age of the Galactic bulge.