

Extinction and scattering of nebular emission in Orion

WILLIAM J. HENNEY¹

¹*Instituto de Radioastronomía y Astrofísica, Universidad Nacional Autónoma de México, Apartado Postal 3-72, 58090 Morelia, Michoacán, Mexico*

Abstract

I compare several different methods for estimating the dust extinction of diffuse emission from H II regions. Using archival data for the Orion Nebula, I show that apparent discrepancies between the different methods are powerful diagnostics of (1) emission line scattering from dusty PDRs; (2) the presence of dust layers sandwiched between two emitting gas layers; and (3) the presence of deeply embedded ionized gas that is invisible at optical and near-infrared wavelengths.

Keywords: Atomic physics; Radiative transfer; Photodissociation regions

1. INTRODUCTION

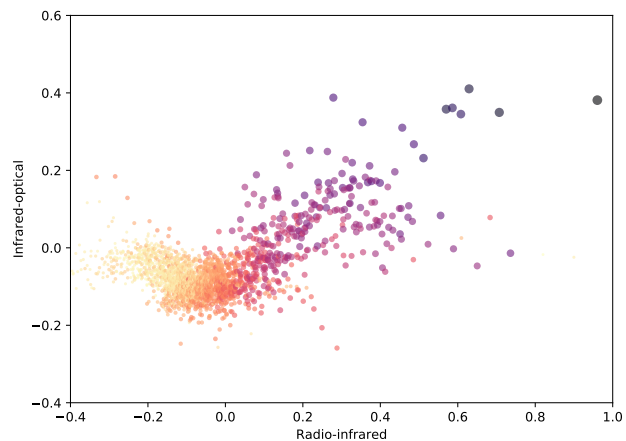


Figure 1. Scatter plot of the infrared/optical extinction anomaly versus the radio/infrared extinction anomaly. Plot symbol color and size indicate the optical–radio extinction (larger values are darker and larger).

REFERENCES

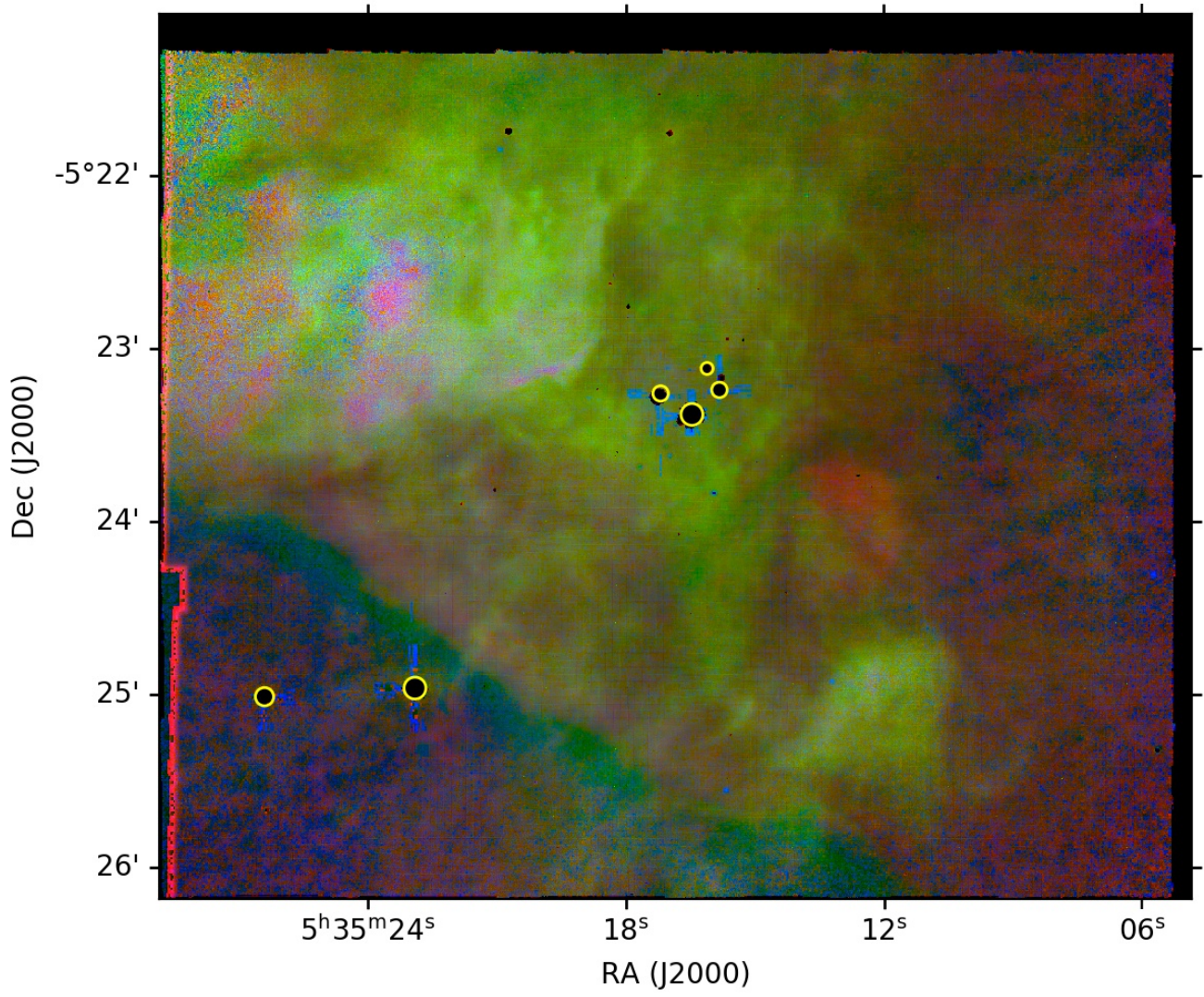


Figure 2. Three-color image of extinction in the inner Orion Nebula. Extinction derived from the optical band reddening of the Balmer decrement (4886 Å to 6563 Å) is shown in green. The infrared/optical extinction anomaly is shown in blue and the radio/infrared extinction anomaly is shown in red.