

JHK Photometry of AGB Stars in the SMC

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We have obtained *JHK(L)* photometry of 29 objects in the direction of the SMC that have IRAS 12 and 25 μm colors that suggest that they are AGB stars. Some of the objects are extremely red with $J-K$ up to 5.6. Two objects are certain foreground objects, one is the VV Cep object N55 (A. R. Walker 1983, *MNRAS*, 203, 25), three are known carbon stars and three are known oxygen-rich AGB stars.

We have modeled the spectral energy distributions of a few stars using a radiative transfer model (Groenewegen 1993, Ph.D. Thesis, University of Amsterdam, Chapter 5). In quite a few cases the IRAS photometry does not fit the near-infrared data. Variability may be the reason in a few cases. In others this seems unlikely and there may be actually more than one red source in the field of view: one that is so red that we did not pick it up down to $K \approx 13$, and one serendipitously discovered red AGB object for which we obtained the near-infrared photometry and which initially was believed to be the IRAS counterpart.

By modeling the energy distributions, carbon stars can be distinguished from oxygen-rich stars based on the completely different absorption efficiencies of carbonaceous and silicate dust.