

Exploring the obscured Milky Way with multi-object spectroscopy

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Abstract

Most high-mass stars in the Milky Way are affected by heavy extinction. On the other hand, they are so luminous that they can be seen, at least in the infrared, out to very large distances. Is it possible to find distant obscured luminous stars in the middle of crowded Galactic Plane fields? We have been developing selection criteria that allow the identification of candidate obscured high-mass stars in different Galactic environments. We have conducted several test observations with AF2 and AAOmega along different sightlines, finding that a careful selection of criteria can result in success rates $> 30\%$. In addition, contaminants are in most cases AGB stars, targets of value in themselves. Even though we have limited ourselves so far to relatively bright ($i < 15$) targets observed around the Ca II triplet, we have already obtained very interesting results, such as the discovery of a large population of distant high-mass stars along the Scutum arm tangent or the location of stars at $d \sim 10$ kpc behind $A_V \sim 15$ mag across the Galactic Disk. With the advent of large scale photometric surveys, such as VVV, IPHAS or VPHAS+, we can refine search criteria to the point that next-generation instruments, such as WEAVE or MOONS, can be used to explore most of the obscured Milky Way.