

Abstract

We have obtained time spaced observations with DECam in 5 bands (u,g,r,i,z) in 6 fields towards the Galactic Bulge. The primary purpose was to measure and use the colors of RR Lyrae stars at their minimum light phases, where their intrinsic colors are predictable to a few percent, to map the reddening to the bulge along different sight lines. The data set is useful for a variety of other studies as well. We present here the reddening map with sub-arc-minute resolution towards the DECam field centered on the well known Baade's Window. Aside from revealing fascinating structure in the dust and indications that the reddening in this direction is different from the standard law, our procedure allows us to produce a de-reddened color-magnitude diagram that reveals hitherto unidentified components in the stellar population in the bulge.