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Variables in the Via Láctea (*VVV*), as the brightest sources observed in *NIP of Stars* are saturated in *VVV*. The aim of this campaign is to perform a census of photometric variability of such clusters and star-forming regions, with the main goal of discovering massive eclipsing binary stars. In this work, we present a preliminary analysis of this photometric monitoring program with the discovery of tens of candidates for variable stars, among them candidates for massive eclipsing binaries. We included also to the analysis of variability, a small set of images obtained in the Ks with the VISTA telescope in the framework of *VVV* survey (Minniti et al. 2010). In special, we announce the infrared discovering of four massive eclipsing binaries in the massive young cluster NGC 3603. The stars have been classified spectroscopically as O-type stars, and one of them, MTT 58, has a rare star with a spectral type of O2 If*/WN6, as one of its components. We present a preliminary analysis of the light-curves of these binaries.

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WHITE DWARF STARS IN THE JPAS SURVEY DETECTION - MASS DETERMINATION - TEMPERATURE DETERMINATION

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White dwarfs are the end state of all main sequence stars less massive than $8M_{\odot}$, which means that 98% of all stars will end up as white dwarfs. First and foremost, J-PAS will allow us to discover many new white dwarfs. It will go deeper than SDSS; most of SDSS spectroscopically confirmed white dwarfs have a magnitude below 20.5, while J-PAS will be complete (5σ detections) down to 22.5 in each filter. So we should see white dwarfs 2.5 times farther than SDSS and therefore the total volume will be (2.5^3 - 1 = 14.6 times larger. By definition every object in J-PAS will be spectroscopically observed, while in SDSS only chosen objects had their spectra taken, so our white dwarf sample will also be much more complete than SDSS. We expect to increase the total number of white dwarfs from approximately 20,000 to 300,000. Among our goals are the study of the white dwarf luminosity function and the mass distribution.

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WHITE DWARF STARS

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White dwarfs are the evolutionary endpoint for nearly 95% of all stars born in our Galaxy, the final stages of evolution of all low- and intermediate mass stars, i.e., main sequence stars with masses below $(8.5 \pm 1.5)\,M_{\odot}$, depending on metallicity of the progenitor, mass loss and core overshoot. Massive white dwarfs are intrinsically rare objects, tand produce a gap in the determination of the initial vs. final mass relation at the high mass end (e.g. Weidemann 2000 A&A, 363, 647; Kalirai et al. 2008, ApJ, 676, 594; Williams, Bolte & Koester 2009, ApJ, 693, 355). Main sequences stars with higher masses will explode as SNII (Smartt S. 2009 ARA&A, 47, 63), but the limit does depend on the metallicity of the progenitor. Massive white dwarfs are probably SNIa progenitors through accretion or merger. They are rare, being the final product of massive stars (less common) and have smaller radius (less luminous). Kepler et al. 2007 (MNRAS, 375, 1315), Kleinman et al. 2013 (ApJS, 204, 5) estimate only 1-2% white dwarfs have masses above 1 $M_{\odot}$. The final stages of evolution after helium burning are a race between core growth and loss of the H-rich envelope in a stellar wind. When the burning shell is exposed, the star rapidly cools and burning ceases, leaving a white dwarf. As they cool down, the magnetic field freezes in, ranging from a few kilogauss to a gigagauss. Peculiar type Ia SN 2006gz, SN 2007if, SN 2009dc, SN 2003fg suggest progenitors in the range $2.4 - 2.8\ M_{\odot}$, and Das U. & Mukhopadhyay B. (2012, Phys. Rev. D, 86, 042001) estimate that the Chandrasekhar limit increases to $2.3 - 2.6\ M_{\odot}$ for extremely high magnetic