

# SEARCHING FOR THE COOLEST WHITE DWARFS IN THE GALAXY

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A number of so-called ultra-cool white dwarfs have been detected in different surveys so far. However, based on anecdotal evidence it is believed that most or all of these ultra-cool white dwarfs are low-mass products of binary evolution and thus not representative for the oldest white dwarfs. Their low mass causes relatively high luminosity making them the first cool white dwarfs detected in relatively shallow surveys. Deeper observations are needed for the oldest, high mass white dwarfs with the longest cooling times. We report results of an ongoing project that combines deep IR and optical data. This combination plus proper motion information will allow an unambiguous identification of very cool white dwarfs, since the SEDs are very different from other types of stellar objects. The atmospheric parameters that can be derived from the SEDs together with the proper motions inferred from the IR data can be used to construct the white dwarf luminosity functions for the thick disc and halo populations. From these we will be able to test the early star formation history and initial-mass-function of the first stellar populations.