The local white dwarf birthrate from

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The local WD sample

Incompleteness starts at $d = 13$ pc (or earlier)

Cumulative distribution of local WDs as function of distance (Holberg et al. 2008).
Bright WDs in galactic coordinates

known WDs brighter V=16.5
Simulated bright WDs

HeGal simulation, $V \leq 16.5$
Simulated post-AGB stars

○ thin disk       ● thick disk       ♦ halo population
DA white dwarfs

$T_{\text{eff}} = 13000 \text{ K}$
$log \ g = 8.0 \ (\text{cgs})$
DA and IPHAS filters

The graph shows the spectral energy distribution (SED) for different filters: r', Hα, and i'. The x-axis represents wavelength in Ångström (Å), and the y-axis represents the normalized flux density $F_\lambda$. The filter responses are indicated with curves: r' (blue), Hα (red), and i' (blue). The SED peaks and dips are characteristic of each filter, allowing astronomers to analyze starlight and identify spectral features.
DAs in the IPHAS colour–colour plot

- $r < 18.0$
- $18.0 < r < 19.0$
- $19.0 < r < 19.5$
Follow-up spectroscopy

- Follow-up spectroscopy of WD candidates (among other types) with MMT/Hectospec, NOT, INT, . . .
- Total sample from IPHAS and UVEX: 95 DA WDs
- Temperature and gravity from fitting of the Balmer lines with model spectra
- Latest generation of Detlev Koester’s model atmospheres was used.
Follow-up spectroscopy
DAs in temperature–gravity diagram
Fitted DAs in colour–colour diagram
IPHAS – full dataset
Summary

- Selected DA white dwarfs from IPHAS using colour-criteria
- Follow-up spectroscopy and model atmosphere analysis of 95 DAs
- Estimate of birthrate hampered by contamination problem.
- Possible sources of contamination
  - Remaining artifacts – better filtering possible?
  - DA binaries with very later type companions
  - Reddened hot white dwarfs and subdwarfs
- By-product: computer program to apply calibration and match all detections of sources (*Wheel v1.2842*).
- Final thought ...