Statistics of hydrogen-rich magnetic white dwarfs detected in the Sloan Digital Sky Survey

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We analyzed the spectra of all known magnetic hydrogen-rich (DA) WDs from the SDSS (97 previously published, plus 44 newly discovered). The total number of known magnetic white dwarfs has already been more than tripled by the SDSS and more objects are expected after more systematic searches. The analysis yield magnetic field strengths between ∼1 and 900 MG. Our results further support the claims that Ap/Bp population is insufficient in generating the numbers and field strength distributions of the observed MWDs, and that of either another source of progenitor types or binary evolution is needed. In this work we also investigated the statistical properties of the magnetic field geometries of this sample. Clear indications of non-centered dipoles exist in about ∼50%, of the objects which is consistent with the magnetic field distribution observed in Ap/Bp stars. We also investigate the possible existence of EF Eri-like unresolved binaries in this sample and asses the open cluster memberships of the objects in whole sample using the astrometric data of SDSS.