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The Origin of Magnetic Fields in Cataclysmic Variables

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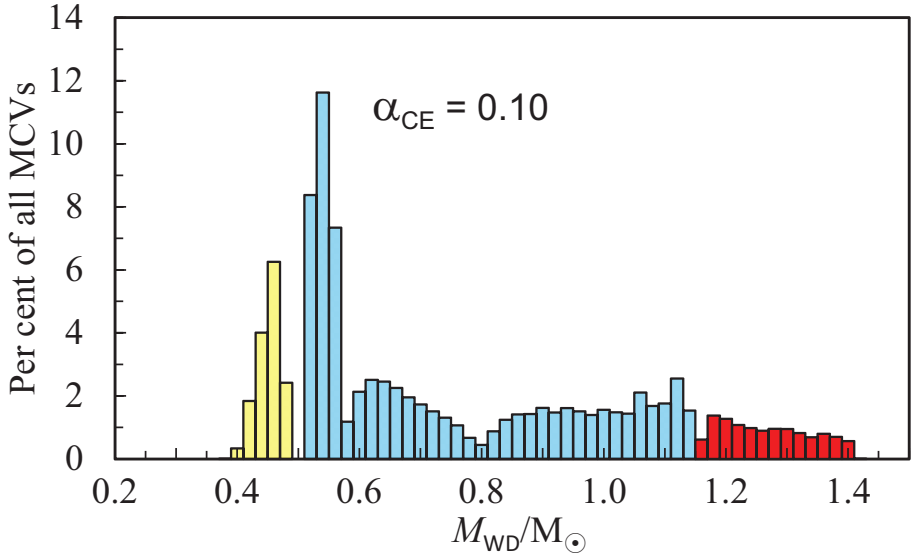
Motivation

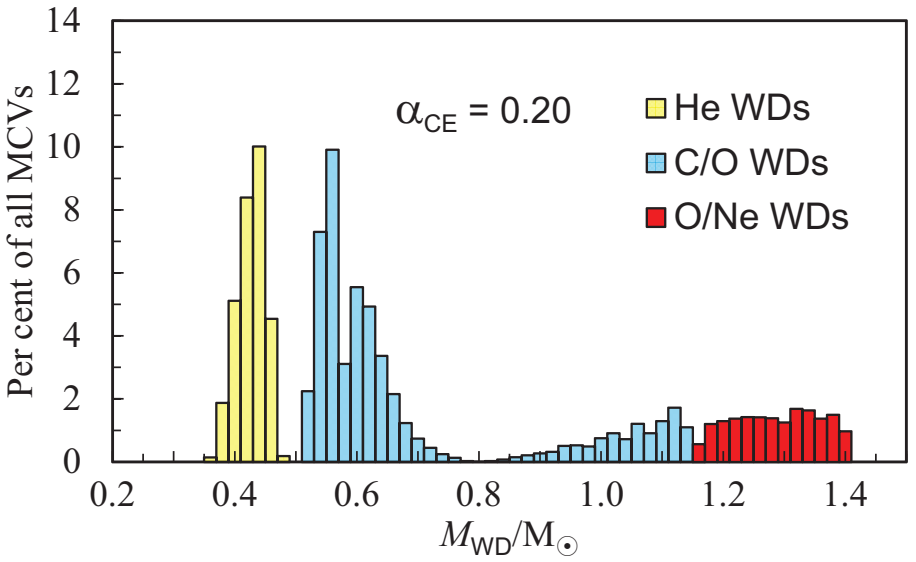
- We have synthesised a population of binaries to investigate the hypothesis that the fields in the magnetic cataclysmic variables (MCVs) originate during the CE phase.

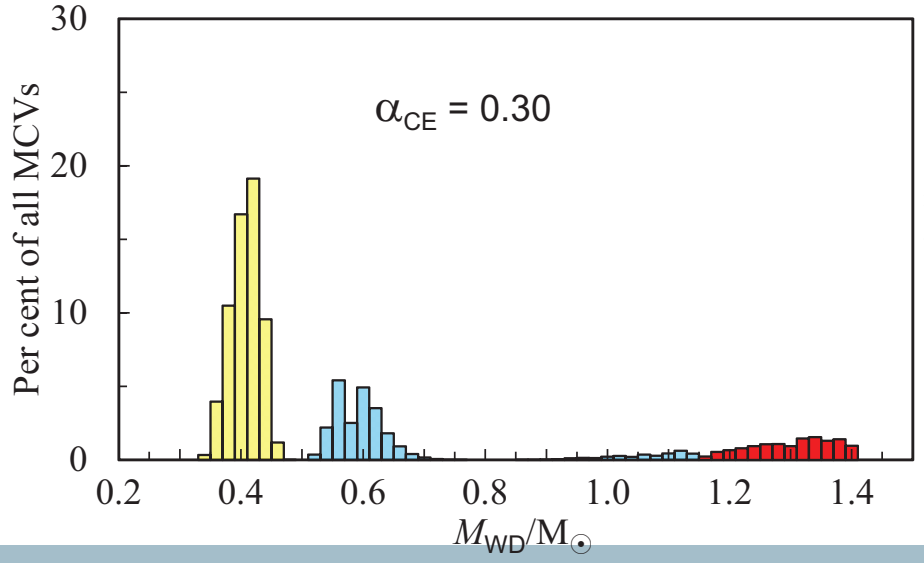
α	Number of PCEBs	PREPs(%) / PCEBs	MCV(%) / PREPS
0.10	30517472	20.9	61.0
0.15	36099023	18.9	56.4
0.20	38666876	15.3	49.9
0.30	41197674	8.7	45.0
0.40	43654871	5.6	48.0
0.50	46289395	4.5	51.0
0.60	49010809	4.1	52.0
0.70	51888317	3.8	52.4
0.80	54664759	3.3	52.4

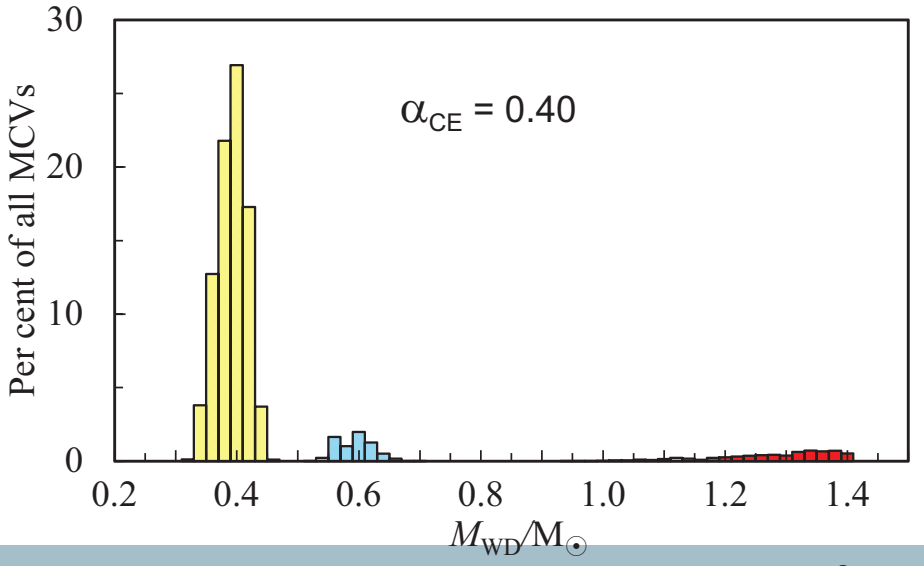
- We have used the ***BSE*** code (Hurley et al. 2002) to evolve binaries from the ZAMS to the age of the Galactic Disc.
- Field: $B = 10^{13} \frac{\Omega}{\Omega_{cr}}$ G where $\Omega_{cr} = \sqrt{\frac{GM_{WD}}{R_{WD}^3}}$

Mass Distribution

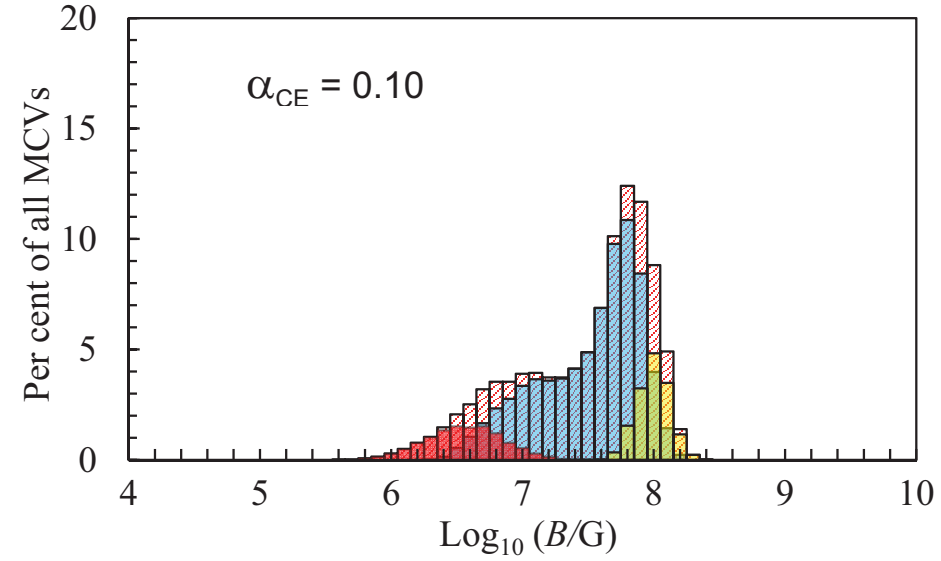


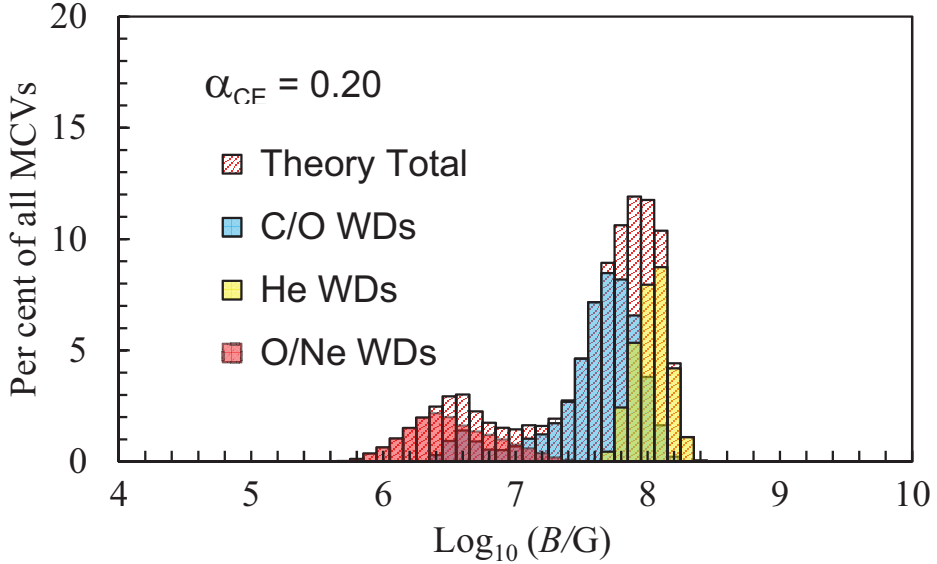


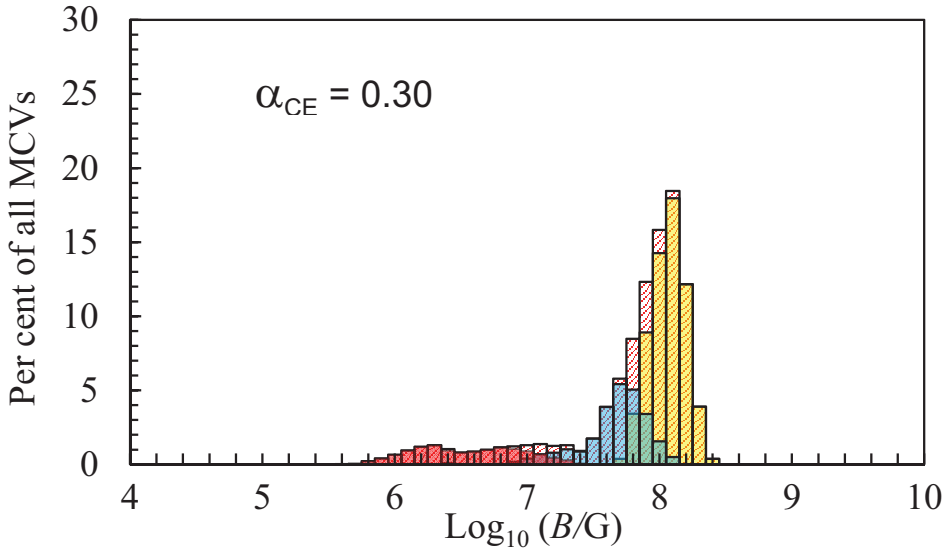


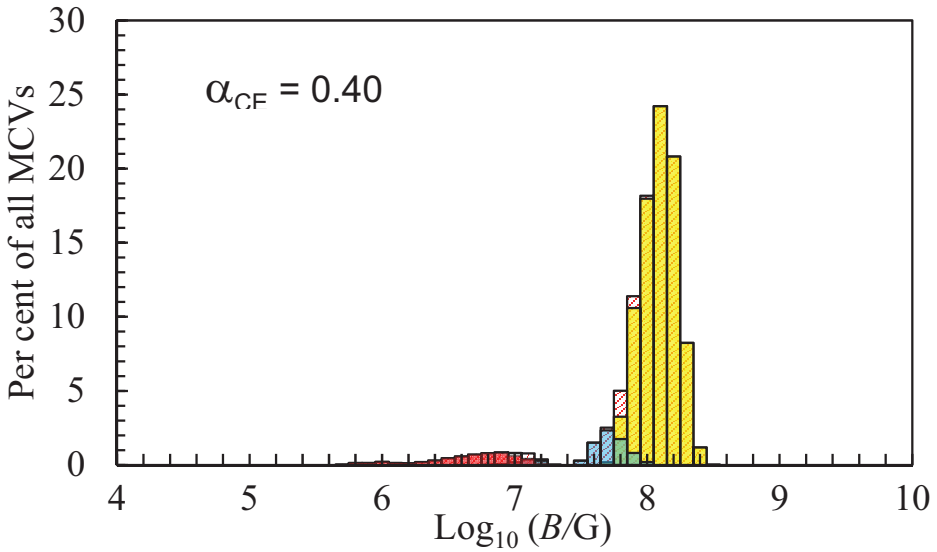


Magnetic Field Distribution









Comparison to Observations

- K-S tests applied to field and mass distributions show a better match to the observations at low α.