

Supplemental material to N. Sarin, A. Brandenburg, & B. Haskell, 2023, “Confronting the neutron star population with inverse cascades,” *Astrophys. J. Lett.*, submitted (arXiv:2305.14347)

Figure 12 of A. Brandenburg, 2020, “Hall cascade with fractional magnetic helicity in neutron star crusts,” *Astrophys. J.* 901, 18 (2020, hereafter B20) showed parametric representations between the dissipation rate ϵ , the rms magnetic field B_{rms} , and the large-scale magnetic field B_{LS} . In Figure 1 of this supplemental material, we also show these three functions versus time. The colors and labels of the lines for the runs agree with those in B20. The main difference is that in Run A, the magnetic field is nonhelical, while in the other runs, it is either fully helical (Runs E and F), or partially helical (Runs C and D), but become nearly fully helical after some time, as explained in B20.

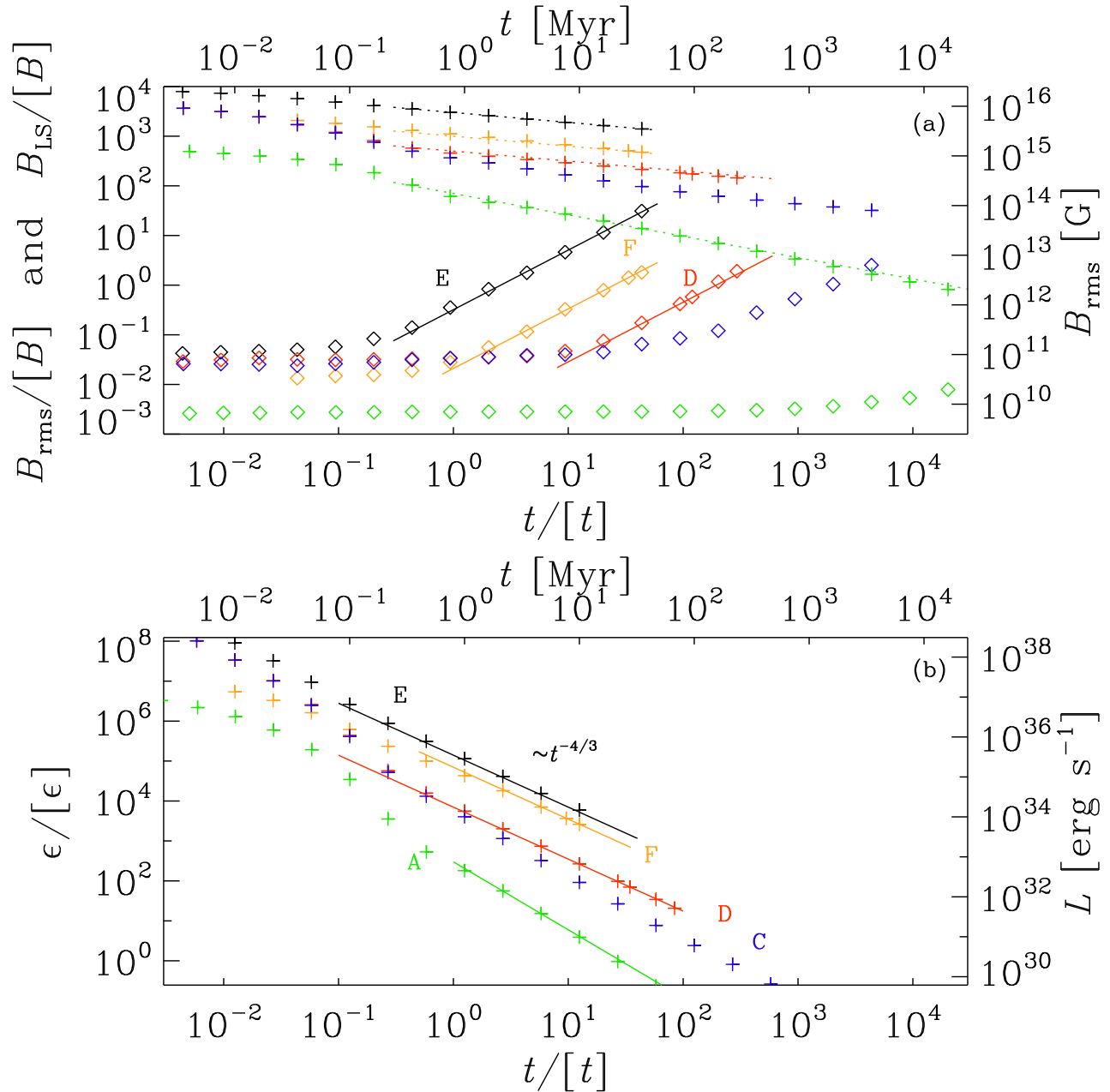


Figure 1: (a) Decay of B_{rms} and B_{LS} . The three solid lines have slopes $B_{\text{LS}} \propto t^{1.2}$, while the dotted lines have slopes $B_{\text{rms}} \propto t^{-0.2}$ and for Run A (green line) $t^{-0.43}$. (b) Decay of ϵ . The right and upper axes denote the values in dimensional units, as explained in B20.