Why do millisecond pulsars have weaker magnetic fields compared to ordinary pulsars?

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Millisecond pulsars, with magnetic fields weaker by three to four orders compared to those of ordinary pulsars, are presumed to be neutron stars spun up by binary accretion. We expect the magnetic field to get screened by the accreted material. Our simulation of this screening mechanism shows that the field decreases by a purely geometric factor $\sin^{-7/2}\theta_{P,i}$ before freezing to an asymptotic value, where $\theta_{P,i}$ is the initial angular width of the polar cap. If $\theta_{P,i}$ lies in the range 5–10^o, then the magnetic field diminution factor turns out to be $\approx 10^3$–10^4, in conformity with observational data. The detailed results of the simulation are presented in two publications (Choudhuri & Konar 2002, MNRAS 332, 933; Konar & Choudhuri 2004, MNRAS 348, 661).