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How well can we infer the magnetic field strengths of neutron stars?

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The magnetic field strengths of neutron stars are typically inferred from pulse timing, relying on a model for the electromagnetic braking torque. I will provide a theoretical overview for the various pieces of physics that adjust this torque, relating to general-relativistic effects, the equation of state, magnetospheric conditions, and dynamical phenomena, arguing that actually there is a huge uncertainty on the inferred magnetic field strength when all is taken into account. Given that many models for neutron-star phenomena depend sensitively on the field strength, we will investigate how these uncertainties affect what we can learn from observations.

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