

Problem set 10

Part a) Derive an expression for the characteristic age of pulsars assuming they are born rapidly rotating and spin down through magnetic braking in their lifetime. (2 points)

Part b) Using the ATNF Pulsar catalogue (<https://www.atnf.csiro.au/research/pulsar/psrcat/>), make a plot of the period and period derivative of the known pulsars. Draw the constant lines of the characteristic ages in the same plot. Also, explain what is the "death-line" of pulsars? (3 points)