

Neutron stars are some of the most dense objects in the universe, with some of the strongest magnetic fields as well ranging from  $10^4$  to  $10^{11}$  Teslas. A natural question would be how do these monstrous things form and how do they generate such a strong magnetic field. In my final project, I intend to discover answers to these questions! My project consists of a similar approach to problem 5.11 in the textbook and relating  $\dot{m}$  to  $\dot{L}$  and  $\dot{A}$  from an astrophysical object such as a planet or a neutron star. The magnetic dipole moment should decrease with time as the object loses energy over time from heat and light radiation, thus having a negative  $\dot{L}$  (the object is spinning down).