1082-83-257   **Marcelo Ponce*** (`mjponce@uoguelph.ca`), Department of Physics, University of Guelph, 50 Stone Road East, Guelph, Ontario N1G 2W1, and **Mathew Anderson**, **Luis Lehner**, **Steven L. Liebling** and **Carlos Palenzuela**. *Neutron Star Magnetospheres interactions in force-free plasma.* Preliminary report.

The study of the magnetic fields in neutron stars (i.e., magnetospheres) may have important impact on the detection of electromagnetic signals from these objects, especially in dynamical situations. In this talk I will discuss the interaction of neutron star magnetospheres with an external magnetic field like the one produced by another star. I will also consider the case where the star is collapsing to a black hole. In order to numerically simulate such systems, it is necessary to implement the fully nonlinear field equations of General Relativity coupled to Maxwell equations. I will describe a novel approach that our code uses to match different limits of the Maxwell equations, namely the force-free approximation to describe the magnetospheres and the ideal magneto-hydrodynanics (MHD) that is well suited for the bulk of the star. (Received July 09, 2012)