Neutron Star Equation of State Constraints from Pulsed X-ray Emission SHARON MORSINK, University of Alberta, ABIGAIL STEVENS, University of Amsterdam, JASON FIEGE, University of Manitoba, DENIS LEAHY, University of Calgary — The observation of pulsed X-ray emission originating from the surfaces of accreting rapidly rotating neutron stars combined with relativistic ray-tracing provides an excellent opportunity to study the properties of neutron stars and to constrain the equation of state of supernuclear density matter. I will review the basic principles behind this method, including the degeneracies inherent in the problem. We are applying a modern genetic algorithm to search for the best-fit masses and radii of the accreting ms period X-ray pulsars that produce X-ray bursts. I will discuss the application of this method to observations that could be performed by the proposed LOFT (Large Observatory for X-ray Timing) mission.

Sharon Morsink
University of Alberta