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Mapping the Radii Around Neutron Stars with NICER RENEE LUDLAM, University of Michigan — Relativistic disk lines provide a valuable tool to determine magnetic field strengths, extent of boundary layers, and even place a limit on the radii of neutron stars. With the sensitivity and low energy bandpass of NICER, we have the opportunity to search for low energy relativistic features down to 0.25 keV that are free from pile-up distortions. One neutron star low-mass X-ray binary that has previously shown strong disk line features is Serpens X-1. Moreover, the source has a low absorption column along the line of sight making it a perfect target to search for multiple emission lines that have the potential to provide improved constraints on neutron star radii. I will present early NICER results on the first detection of Fe L in the persistent emission from Serpens X-1 and the implications for the accretion and star itself.

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