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Taking measure of the Galaxy in low frequency gravitational waves SHANE L. LARSON, Weber State University, BRETT TAYLOR, Radford University, MATTHEW BENACQUISTA, University of Texas-Brownsville — The galaxy is populated with millions of compact binary star systems that radiate strongly in the low frequency gravitational wave band from 10 microHertz to 100 milliHertz. Spaceborne gravitational wave detectors will detect three distinct groups of stars within this population: a confusion foreground of unresolved stars, a group of stars which are essentially monochromatic in gravitational wave frequency during the observations, and a group of stars which have detectable frequency evolution (i.e. changing orbital periods) during the observations. This talk will discuss the use of several population synthesis realizations of the Milky Way galaxy to explore selection biases in gravitational wave data streams, and how these three distinct populations can be used to determine the bulk structure and shape of the Galaxy.

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