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**Controlling Outlier Contamination In Multimessenger Time-domain Searches For Supermassive Binary Black Holes** QIAOHONG WANG, STEPHEN R. TAYLOR, Vanderbilt University — A versatile outlier mitigation method tuned for multimessenger time-domain searches for supermassive binary black holes has yet to be fully explored. In an effort to perform robust outlier isolation with lower computational costs, we propose a Gibbs sampling approach. Our method provides structural simplicity to outlier modeling and isolation, as it requires only small alterations when adapting to each hierarchical time-domain model. We robustly diagnose outliers present in simulated pulsar-timing datasets, and then further apply our methods to pulsar J1909-3744 from the NANOGrav 9-yr Dataset. We also explore the periodic AGN candidate PG1302-102 using datasets from the Catalina Real-time Transient Survey (CRTS), All-Sky Automated Survey for Supernovae (ASAS-SN), and the Lincoln Near-Earth Asteroid Research (LINEAR). We present our findings and outline future work that could improve outlier modeling and isolation for multimessenger time-domain searches.

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