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Hierarchical follow-up of outliers in all-sky searches for continuous gravitational waves SINEAD WALSH, Univ of Wisconsin, Milwaukee, EINSTEIN@HOME TEAM — Rapidly rotating neutron stars are promising sources of continuous gravitational waves for the LIGO and Virgo interferometers. All-sky searches for isolated neutron stars offer the potential to detect gravitational waves from neutron stars which have not been observed electromagnetically. These all-sky searches cover a broad parameter space in frequency and spindown, requiring a huge number of templates in parameter space to avoid having too much distance between a potential signal and the nearest template. The large trials factors result in many outliers due to random noise, and additional outliers are produced by detector artifacts. In this talk, I present a hierarchical approach to processing the results of an all-sky search. This approach is designed so that at each hierarchical stage, the significance of a cell harbouring a real signal will increase, while the significance of a cell that does not contain a signal will not increase. Thus we are sensitive to signals that would otherwise be hidden by the noise background.

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