

Detection Efficiency Studies for Searches for Neutron Star Binary Inspiral Gravitational Waves

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I reviewed the currently used square template bank system and developed a thorough outline of how templates are laid in this bank. I also reviewed some issues of inefficiency with templates being laid outside the parameter space. I generated ellipses, or contours of constant ' mismatch' for the templates both in tau space and mass space. I then injected thousands of signals into different types of banks to check that the contours were as expected for each of the templates. Finally, I analyzed the newly proposed hexagonal bank layout system as developed by Thomas Cokelaer. This bank packing method proved to be superior to the current system, and I believe that my analysis will lead to implementation of this new bank very soon.