Coherent analysis of gravitational wave chirps and bursts

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General Relativity Theory predicts the existence of gravitational radiation, and several observatories have been built and are being put into operation in order to measure its effect. One candidate event that might be among the first to be observed is a binary neutron star inspiral, which will induce strong gravitational radiation that is expected to be detectable by today's gravitational wave observatories. Apart from the detection itself, it is of interest to derive parameters like location and individual masses of the inspiral's two companions from the measured detector response.
We introduce a Bayesian analysis strategy for this purpose, that allows to process simultaneous measurements from different detectors and accounts for their different characteristics, like sampling rates and coloured noise. An MCMC algorithm has been developed for posterior inference, implementing likelihood computation in the frequency domain, and a parallel tempering scheme for improved convergence. Some preliminary results are shown.