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Gravitational Waves from a Dark Sector

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A large class of models with a composite dark sector undergo a strong first order phase transition in the early universe, which could lead to a detectable gravitational wave signal. I will summarise the basic conditions for a strong first order phase
transition for SU(N) dark sectors, calculate the gravitational wave spectrum
and show that, depending on the dark confinement scale, it can be detected at eLISA or
in pulsar timing array experiments. The gravitational wave signal provides a unique test
of the gravitational interactions of a dark sector, and we discuss the complementarity with conventional searches for new dark sectors.

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