

Signal-recycling cavity lock with a sub-carrier laser

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The current error signal for the SRC length control, based on the frontal modulation scheme, is sub-optimal for a detuned operation of the interferometer. At the GEO600 detector, we tested a new SRC locking technique that is more suitable for transitioning the detector to a detuned state. The new technique is based on detecting changes in the SRC length by injecting an auxiliary sub-carrier field from the dark port of the interferometer. The sub-carrier field shares the same path with the squeezed light.

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