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## Twin Signal Recycling for the Einstein Telescope

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The Einstein Telescope (ET) is a third-generation gravitational wave observatory with a target sensitivity of more than an order of magnitude higher than the current advanced detectors. ET will be located underground, consisting of three nested detectors, each of which is composed of two interferometers in xylophone configuration. In this poster we revisit the technique of Twin Signal Recycling (TSR), which leads to simultaneous resonant enhancement of both the upper and the lower signal sidebands. A comparison of this technique for a futuristic GEO-HF with arm cavities and ET-LF is also discussed here. For the latter, a preliminary attempt at a broadband reduction in quantum noise limited sensitivity by use of frequency dependent squeezing has been simulated using the numerical interferometer simulation package Finesse. The benefits of both these techniques are weighed by measuring the quantum noise limited sensitivity of ET-LF detuned signal recycling with twin signal recycled ET-LF.

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