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# Linear three-mirror cavity for quantum noise reduction: resonant behavior, stability and meter-scale prototype

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Fabry-Perot cavities are used in present GW interferometers for the frequency-dependent squeezing technique, which reduces quantum noise across the entire observation frequency range. However, they may not offer sufficient control over the squeezing properties required for next-generation detectors, in particular the Einstein Telescope. To this end, different filtering system configurations are currently being explored. Among these, linear three-mirror cavities are of particular interest due to their unique characteristics, especially resonance peak splitting and their equivalence to two-mirror cavities with variable finesse. I will discuss simulations we conducted to examine how the resonant behavior and stability of these systems vary with different configurations, as well as experimental measurements taken from a meter-scale prototype that demonstrates variable finesse and resonance splitting.

**Author:** M. STEVENS, Paul (CNRS / IJCLab)

**Orateur:** M. STEVENS, Paul (CNRS / IJCLab)

**Classification de Session:** Contributions (15' + 5' de questions)