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Status of squeezing and quantum enhancement for gravitational wave detection at NAOJ

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The detection of gravitational waves uses highly sensitive interferometers that are now limited by quantum uncertainty of photon amplitude and phase. Advanced gravitational wave detectors employ the use of squeezed vacuum injection to reduce quantum noise across a broad band of detection frequencies. In the TAMA facility at the National Astronomical Observatory of Japan we maintain the 300m suspended cavity that was used as an initial demonstration of the viability of frequency dependent squeezing for gravitational wave detectors. In this presentation I will give an overview of the current outlook of the squeezing experiment as well as other possible avenues of quantum enhancement that could be investigated at our facility.

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