

Application of optomechanical frequency converter on gravitational wave detection

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In this talk I will discuss a new broadband squeezing scheme based on optomechanical frequency converter to suppress the quantum noise in gravitational wave detector such as LIGO/VIRGO. We calculate the sensitivity curve of this scheme and analyze the effect of thermal noise and optical loss to the sensitivity. In contrast to the conventional broadband squeezing scheme, there is no need of additional filter cavities.