

Abstract for an Invited Paper
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Wideband, Third-generation, Gravitational-wave Antenna

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The upcoming set of gravitational wave detectors (Adv LIGO, Adv Virgo, LCGT) will enable reliable detection of gravitational waves from compact binaries; likely dozens per year. To make high precision tests of relativity, nuclear physics, and cosmology will require an upgrade. I will argue that a relatively simple set of upgrades to the existing detectors will enable bypassing the current thermodynamic and quantum measurement limits. By hurdling these limits, we will be able to place the strongest constraints to date on alternative theories of strong field gravity and models for the neutron star equation of state and some gamma ray burst models.