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## Heavy suspension designs for LIGO A#

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LIGO A# is an upgrade path for the LIGO facilities which has recently been recommended (LIGO-T2200287). This upgrade is suggested after the completion of O5. A major part of the upgrade is to replace the optics with 100 kg mirrors on new suspensions. The new suspensions are based on the design history of the Advanced LIGO and GEO suspensions, and incorporate lessons learned from the operation of Advanced LIGO. In this talk I will describe the design of the upgraded Suspensions and discuss the opportunities and challenges we see with these new, heavy suspension. With heavier optics, higher stress fibers, and upgraded suspensions we anticipate that A# will be able to reach fundamental noise sources down to 10 Hz.

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