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Radiative mirror thermal compensation system

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The powerful beams stored in the Fabry Perot cavities of gravitational wave detectors deposit heat on the mirror coatings and cause thermal lensing. We present an experiment that studies the feasibility to balance that excess heat by selectively absorbing the black body heat that at ambient temperature naturally radiates from the test masses. It is shown how the coating heating effect can be fully eliminated in a completely passive way. The method can extract a power of the order of the Watt, depending on the beam spot size.

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