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Optical levitation of a mirror

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An optomechanical device reaching the standard quantum limit (SQL) of a force measurement plays a prominent role for studying quantum mechanics. To prepare such a device, a mechanical oscillator well isolated from the environment is essential for the reduction of thermal disturbances. Here we propose an optical levitation of a mirror with two vertical Fabry-Perot cavities linearly aligned. We show the stability of the system and demonstrate the feasibility of reaching the SQL with this system.

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