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# Development of a laser stabilized on an ultra-stable silicon cryogenic Fabry-Pérot cavity for dark matter detection

Ultra-stable Fabry-Pérot cavities are ideal tools for ultra-light dark matter detection, since the fluctuations of length of the cavity can be detected on the frequency of the laser stabilized on the cavity. At FEMTO-ST, we dispose of an ultra-stable silicon cavity suitable for a test of detection of ultra-light dark matter in an energy range close to $10^{-10}$ eV.c$^{-2}$. We present the status of the development of our ultra-stable laser and the mechanical response of the cavity in presence of ultra-light dark matter, strongly enhanced by the mechanical quality factor of silicon compared to ULE glass or fused silica.

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