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【432】 Lloyd's Mirror with Very-Cold Neutrons

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The prospects of an implementation of Lloyd's Mirror with very-cold neutrons at the Institut Laue-Langevin are investigated. Lloyd's Mirror is a free-space interferometer similar to the double-slit experiment, but with a vertical mirror on the beam axis.

This interferometer was suggested to probe physics beyond the standard model of particle physics i.e. dark matter and dark energy models. Here concrete measurement scenarios and the achievable sensitivity is presented. The estimation of the expected sensitivity is based on previously measured beam characteristics of the shaping section at the very-cold neutron beam at the PF2 at the Institut Laue-Langevin.

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