

**Title:**           **WISP hunting - some new experimental ideas**

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#### Abstract

We present several new ideas on how to search for weakly interacting sub-eV particles in laboratory experiments.

The first experiment is sensitive to minicharged particles. It exploits the fact that in strong electric fields there is a production of particles antiparticle pairs - Schwinger pair production - the charged move along the lines of the electric field and generate a current that can be measured.

The second experiment is designed to search for hidden-sector photons. It is based on photon - hidden photon oscillations and resembles a classic light shining through the wall experiment. However, instead of visible light it uses microwaves inside cavities. The latter can achieve much higher quality factors than optical cavities increasing the sensitivity.

The third experiment is also sensitive to hidden photons. However, instead of electromagnetic waves it uses (nearly) constant magnetic fields. Photon - hidden photon mixing would allow these magnetic fields to leak through superconducting shielding which would ordinarily eliminate all magnetic fields.