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Fundamental physics at low energies – The quest for axions and other new light particles

Embedding the Standard Model into more fundamental theories often predicts low mass and very weakly interacting particles, so-called WISPs (Weakly Interacting Slim Particles), such as the axion. A number of small-scale experiments at the intensity/precision frontier – for example “light shining through a wall”, haloscopes and helioscopes – are actively searching for these elusive particles, complementing searches for physics beyond the Standard Model at accelerators.

A plausible next generation of experiments includes scaled-up versions of the existing techniques as well as innovative concepts, together covering a huge unexplored parameter space.

A WISP discovery would have a tremendous impact on our understanding of fundamental physics, astrophysics and may shed light upon the mysteries of Dark Matter and Dark Energy.

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