Contribution ID: **197**   Type: **Oral**

VUV light collection enhancement with metasurface lenses

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Vacuum-ultraviolet (VUV) light has applications in many areas of fundamental research and technology, including high-energy physics (HEP) experiments and especially those based on scintillation of noble elements (xenon and argon).

There are persistent challenges associated with the detection of the VUV photons in particle detectors, e.g. strong absorption by structural materials and low detection efficiency of the photosensors.

Metasurfaces are relatively novel nano-fabricated devices which offer unprecedented control of light with a wide field of view and diffraction-limited focusing.

This contribution will present the first linear metasurface lens operating in the VUV spectral range with the measured diffraction efficiencies above 50%.

The design and fabrication processes will be described in detail, as well as the characterization measurements, and possible applications in the HEP experiments will be discussed.

Early Career

Yes

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