

## **VUV wire grid polarizer based on interband absorption**

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Polarizers are essential optical elements, utilized in numerous optical metrology applications. Wire grid polarizers (WGP) are superior to other polarizer concepts due to their large possible free aperture (e.g. 10 x 10cm) while being simultaneously extremely thin (substrate thickness, e.g. 0.5 mm). Furthermore, they offer large acceptance angles, and integration in other optical elements is easily possible. WGP are zero order gratings, currently made of metals as aluminum. Fundamentally, the permittivity becomes unsuitable at short wavelengths leading to a virtual application limit at about 250 nm. In this contribution, we propose WGP based on pronounced absorption, originated by interband transitions in semiconductors such as titanium dioxide. Thereby, application further in the VUV are enabled. We will show the material requirements for WGP and review application limits of several materials. Based on this, we present on design, fabrication and measurement results of such WGP.