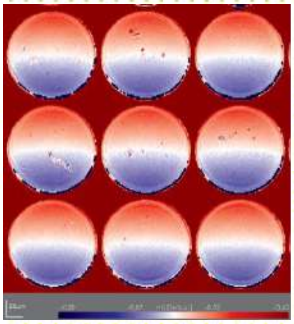
Characterization of AR Coatings on
Curved - Surfaces BY IMAGING ELLIPSOMETRY

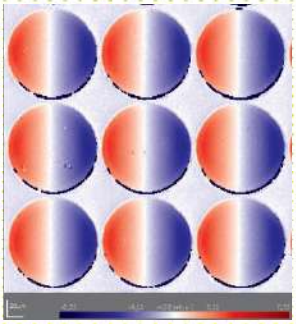
## SAMPLE AND SETUP :

Ellipsometry is very sensitive to measure thin films and antireflection (AR) coatings. However, it usually only works for flat samples. With this abstract we show that imaging ellipsometry can over come this issue an measure e.g. AR coating on curved surfaces as e.g. micro-lens-arrays

Imaging ellipsometry with the nanofilm_EP 4 offers highest lateral ellipsometric resolution down to 1 µm. It combines the sensitivity for thickness and refractive indices measurements of ellipsometry with the benefits of magnification and lateral resolution from optical microscopy.


## MEASUREMENT :



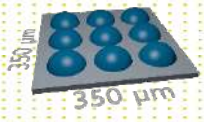


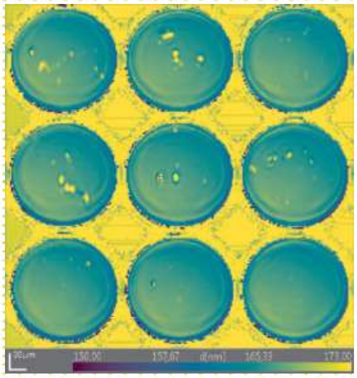
Nine micro lenses with a size of 80 µm are measured simultaneously. These micro-lenses are coated with a $SiO_2$ layer, that works as an AR coating.

The measured values are shown on the left. The curvature in top-down and left-right direction is observed. The apex can be seen as white bar in the middle of the lenses for both directions.

## RESULTS :

- Thickness of $SiO_2$ on top of micro-lenses
- Defects in AR-coating
- Gradient of AR-coating is independent from orientation of micro-lenses



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