



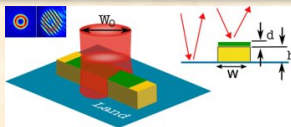
Pushing bOundaries of nano-dimensional metrology by **Light**

EMPIR/EURAMET Project 20FUN02

The goal of the project will be to develop new optical measurement techniques for the investigation of structures at the nanoscale with traceable spatial resolution beyond classical limits and sub-nanometre accuracy. Approaches to higher resolution systems include: the development of new “metamaterial” structures; near-field methods; quantum optics techniques that exploit photon entanglement; the decoding of other information contained in optical waves.

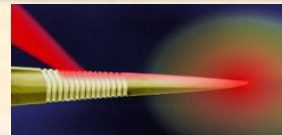
WP1: Far field metrology within the Rayleigh regime

To select and exploit the essential information that can be extracted from the interaction of a light probe and an unknown object by taking advantage of all possible degrees of freedom that intervene in a light-matter interaction process.



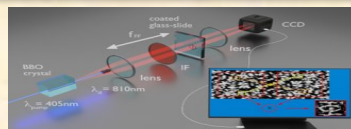
WP2: Inelastic, non-linear and resonant optical metrology

To exploit and make available the potential of inelastic, nonlinear and resonant processes to enhance diffraction-based optical methods, to provide novel or improved super-resolution microscopy methods for universal metrology applications.



WP3: Innovative imaging methods by light shaping in the classical and quantum domains

To exploit the spatial degree of freedom of a light field, both in the classical and quantum domains. Engineered states of light hold the potential to largely increase the sensitivity of measurements of specific geometrical or physical parameters of a nano-target.



Visit our website:

<https://www.ptb.de/empir2021/polight/home/>

Interested in becoming a collaborator in our project?

Please, contact us: Bernd.Bodermann@ptb.de

