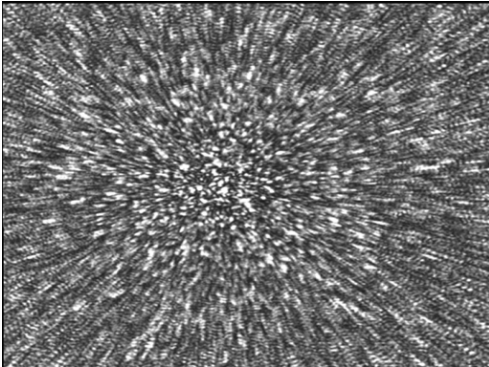
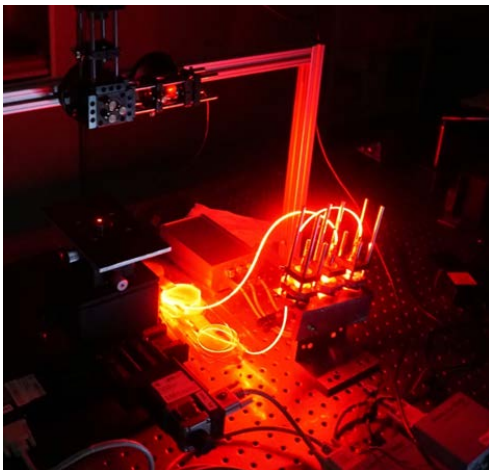


Thesis (Bachelor / Master)

Influence of the surface topography and waviness on the polychromatic roughness measurement



Effect of speckle elongation by polychromatic light source



Experimental setup for optical determination of roughness



Measuring spot on the surface of a 1 Euro coin

Surface roughness is one of the characteristics used to evaluate the quality of manufactured components. Due to a lack of available process-internal measuring technology, the recording of surface roughness is currently carried out downstream and randomly, resulting in additional costs and the quality cannot be guaranteed for all components with justifiable effort.

The polychromatic illumination of the component surface produces elongated speckle patterns. The degree of elongation correlates with the surface roughness. Different machining processes (milling, grinding, turning, lapping) result in different surface topographies, resulting in different speckle patterns for the same roughness.

Shape deviations of the components such as waviness have a direct influence on the elongation of the speckle and the direction of the scattered light.

Tasks:

- Planning, implementation & evaluation of measurement series
- Characterization of the influence of different surface topographies

Your Profile:

- Pleasure in experimental or analytical work
- Interest in laser measurement technology
- Self-reliant working style
- Desirable: knowledge of MATLAB

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