

## **QISAB: Intellectual Property Details**

# How QISAB's IP is Revolutionary

- Allows measurements of surface quality at the nanometer level directly in the production line
  - High-speed laser measurement with large depth-of-field not sensitive to vibrations, noise or light
  - Dramatically reduces time required for manual and/or laboratory-based inspection
  - Allows automation of both surface measurement and subsequent process steps (e.g., polishing)

# Intellectual Property Rights (1)

- QISAB's international patent (PCT) concerning the CWS system (WO 2014/126526 A1) was accepted and published August 21<sup>st</sup>, 2014 and is now in the national phase application in all material geographies
  - National patents have been approved in USA, Europe, Australia, Canada and China
- The basis for QISAB's first commercial product offering

(54) Title: A METHOD AND APPARATUS FOR QUANTITATIVE MEASUREMENT OF SURFACE ACCURACY OF AN AREA

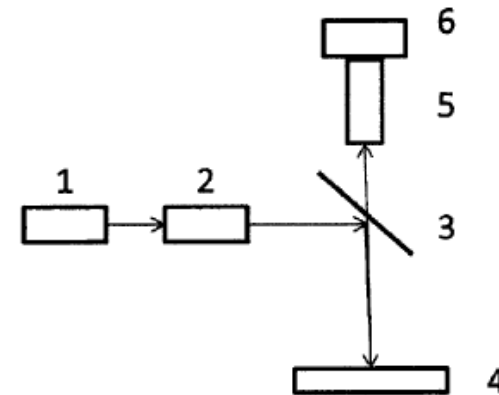


Fig. 1

(57) Abstract: A method for quantitative measurement of surface accuracy of an area is provided. This comprises directing a monochromatic flat light wave towards a pre-defined surface area, recording an image of the reflected light with a camera and lens system focused on said surface area, and deducing surface accuracy parameters from the recorded image. The method is characterized in that said surface accuracy parameters are determined by obtaining a Fourier transform of the recorded image. Then, fitting pre-determined Fourier components to a Fourier spectrum of said Fourier transform, wherein said Fourier components are determined along the major and across the minor elongation axes of the Fourier transform as at least a large Gaussian component, and a peak of the spectrum. Followed by, determining surface accuracy parameters of said surface area from said Fourier components.

# Intellectual Property Rights (2)

- QISAB’s international patent (PCT) concerning its white light interferometer band-width synthesis (“BWS”) technology (WO 2017/028896 A1) was accepted and published in February 2017
  - National patent applications filed during 2018
- Not yet in commercial application/production

(54) Title: METHOD AND APPARATUS FOR DERIVING A TOPOGRAPHY OF AN OBJECT SURFACE

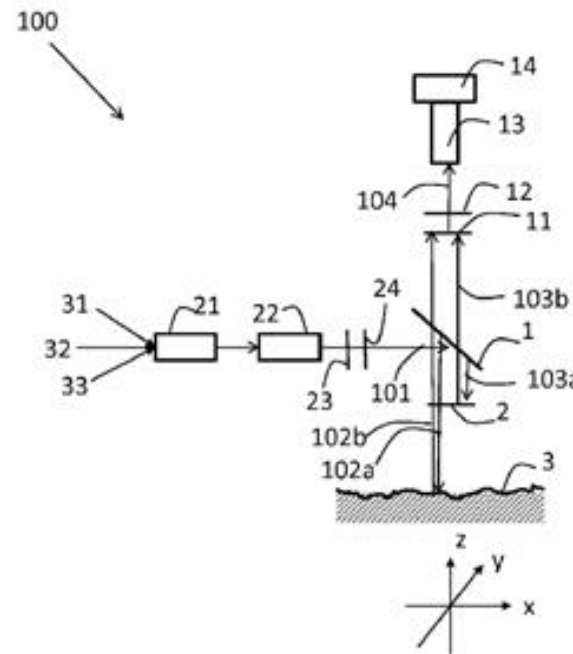


Fig. 1

(57) Abstract: The embodiments herein relate to a method for deriving topography of an object surface (3). A linearly polarized light wave (102a, 103a) is directed towards the object surface (3) and a reference surface (2). Images of reflected linearly polarized light wave (102b, 103b) for a plurality of wavelengths are obtained. The images are obtained for at least four polarizations for each of the plurality of wavelengths. The reflected linearly polarized light wave (102b, 103b) is a reflection of the linearly polarized light wave (102a, 103a) directed towards the object surface (3) and the reference surface (2). The topography of the object surface (3) based on the obtained images is obtained.

# Intellectual Property Rights (3)

- New metrology system for large surfaces and also transparent materials and coatings
  - perfect for coating defect detection
  - quick and easy to use on big surfaces for defect detection
- WMS generation 2: phase & polarization instead of intensity

