

POLKA – POLARIZATION CAMERA UNCOVER THE INVISIBLE

Fraunhofer Institute for Integrated Circuits IIS

Management of the institute
Prof. Dr.-Ing. Albert Heuberger
(executive)
Dr.-Ing. Bernhard Grill

Am Wolfsmantel 33
91058 Erlangen, Germany

Contact:
Department Electronic Imaging
Dr. Michael Schöberl
Phone +49 9131 776-5147
Fax +49 9131 776-5108
michael.schoeberl@iis.fraunhofer.de

www.iis.fraunhofer.de

**POLKA IS A POLARIZATION CAMERA THAT
MAKES VISIBLE WHAT IS IMPERCEPTIBLE
TO THE HUMAN EYE – THE POLARIZATION
OF LIGHT.**

POLKA – 100% Fraunhofer

POLKA's sensor, camera hardware, operating and analysis software are all made by Fraunhofer IIS.

We developed a patent-protected process for manufacturing the unique sensor that synchronizes perfectly with the camera's hardware, controls and special algorithms for analyzing the sensor signals.

POLKA – Prototype for new solutions

Polarization reveals additional information about light that is useful for many technical and medical applications. Our camera prototype registers and measures this property of

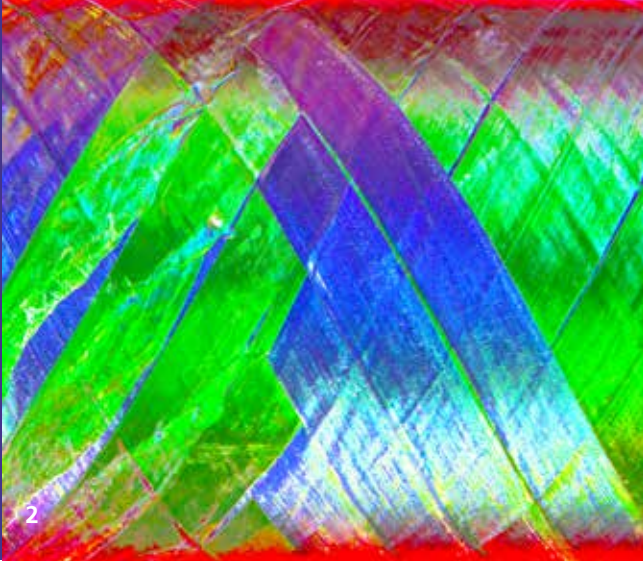
light characteristics in just one shot, opening up completely new testing and analysis methods.

POLKA – simple handling

The camera is ready to go in no time without any mechanical calibration. Its standard C-mount lens adapter enables the user to quickly adjust the camera's optical properties to suit different applications, and also accommodates standard lenses.

POLKA – ideal partner for in-line testing

POLKA captures all the relevant polarization parameters in a single shot at a read-out rate of up to 25 images per second. Fast data transmission thanks to GigE Vision makes POLKA ideally suited for testing moving objects and POLKA's robust



and low-maintenance design is perfect for industrial use.

Possible applications

- Testing mechanical stress in glass and transparent plastics
- Reflection suppression on non-metallic materials
- Inspecting building components made from carbon fiber reinforced plastics
- Tissue analysis for medical purposes
- Materials differentiation

Technical data of our current prototype

Optical

- Resolution: 640 x 480 pixels
- Frame rate: up to 25 fps
- Sensor format: 3.8 x 2.9 mm
- Pixel size: 6 μ m

Electrical

- GigE Vision or USB3 Vision interface
- Control signals: Sync, Trigger, Strobe
- Power supply: 5 volts, 3,5 watts

Mechanical

- Lens adapter: standard C-Mount
- Size: 55 x 55 x 65 mm
- Weight: 290 g

1 Polarization image of tension birefringence in synthetic material

2 Change of polarization angle from carbon fibers

3 Polarization camera prototype POLKA

POLKA – open to your application

Do you have a concrete application for POLKA that requires other interfaces or application-specific software?

We can modify the hardware design in accordance with your needs and enhance the software with proprietary image processing and analysis algorithms.

Are you interested in renting the POLKA system for test purposes over a specific period of time?

We would be happy to provide you with a quote.

Call today and discover the benefits of POLKA for yourself!

For more information, please visit:

www.iis.fraunhofer.de/polka