
EPIC
European Photonics
Industry Consortium
Friday, 26 June 2020, 15:00 CEST
EPIC Online Technology Meeting on Photonics for Solar Energy Systems

Light & Optics
OEM-Business

OEM supplier with focus on being a development and production partner for key technologies based on photonics

Photonics at the heart of our OEM customers products

Light & Production
B2B-Business

Engineering with a focus on smart manufacturing and process automation solutions for industrial customers

Driving production efficiency with photonics

Light & Safety
B2G-Business

Imaging based solutions for Public Safety in combination with intelligent data management

Making roads and communities safer

VINCORION

Mechatronic solutions for partners in the Aviation, Security and Defense Industries

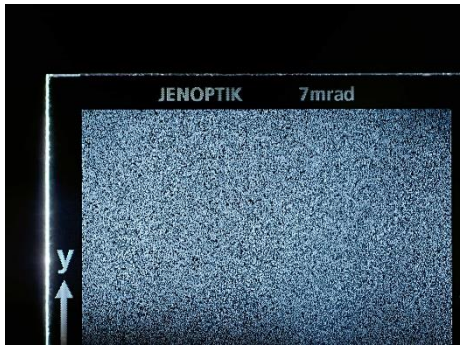
Mechatronic solutions in challenging and regulated environments

core technology - from manufacturing of single parts….

Precision components in optics and micro optics

Tailored to customer requirements

- Prototype and serial production
- Various optical materials are possible:
  e.g. optical glasses, glas ceramics, crystals as well as modern and lightweight plastics



Beam-shaper and beam-splitter

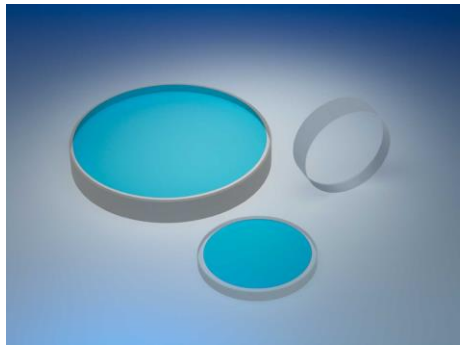
Refractive und diffractive optical elements

- High efficient beam shaping and splitting
- Products all the way from the initial idea through development to system integration
- High precision diffractive structures

Optical components

Standardized as well as free-form components

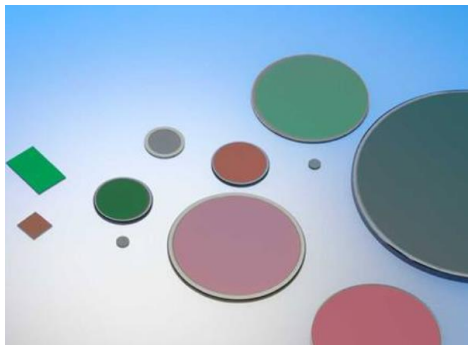
- Plano optics with extremely good cleanliness and irregularity
- High precision lenses: from rotational symmetric to freeform
- Surface finishing using MRF and ion beam technologies



Coatings for laser optics

High efficient and extremely resistant

- Coating technologies with high damage threshold
- From deep UV up to NIR
- Extremely low absorption and scattering loss



Optical filter and beam splitter for IR

Sophisticated IR coatings

- Standard and customized IR coatings from 1-16 µm range
- Long wave pass and short wave pass filters available
- Dichroic beam splitters – spectral beam separation
- Polarizing beam splitters – split light unto p- and s-polarized parts

…to manufacturing, assembly and testing of components

F-Theta Objektive

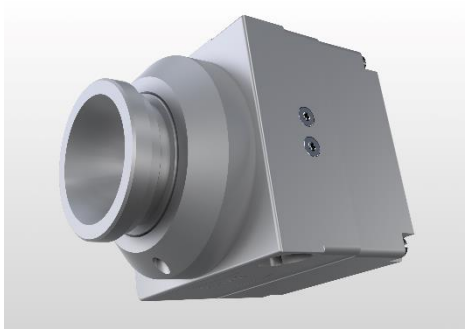
JENar or Silverline

- Quartz or glass
- Diffraction limited
- High image quality
- high spot constancy over the entire scan area
- JO Design – everything from one source

Beam expander

manual or motorized

- Continuous adjustable
- Allows increase or decrease of focus diameter
- Allows high standardization of the overall system
- Easy to control via interfaces (motorized version)



Infrared camera modules

Standard- or OEM Solution

- Non-contact measurement of temperature data
- Easy integration
- Use in numerous fields of application through modular toolbox approach

Diode laser modules

Manufacturing on semiconductor level

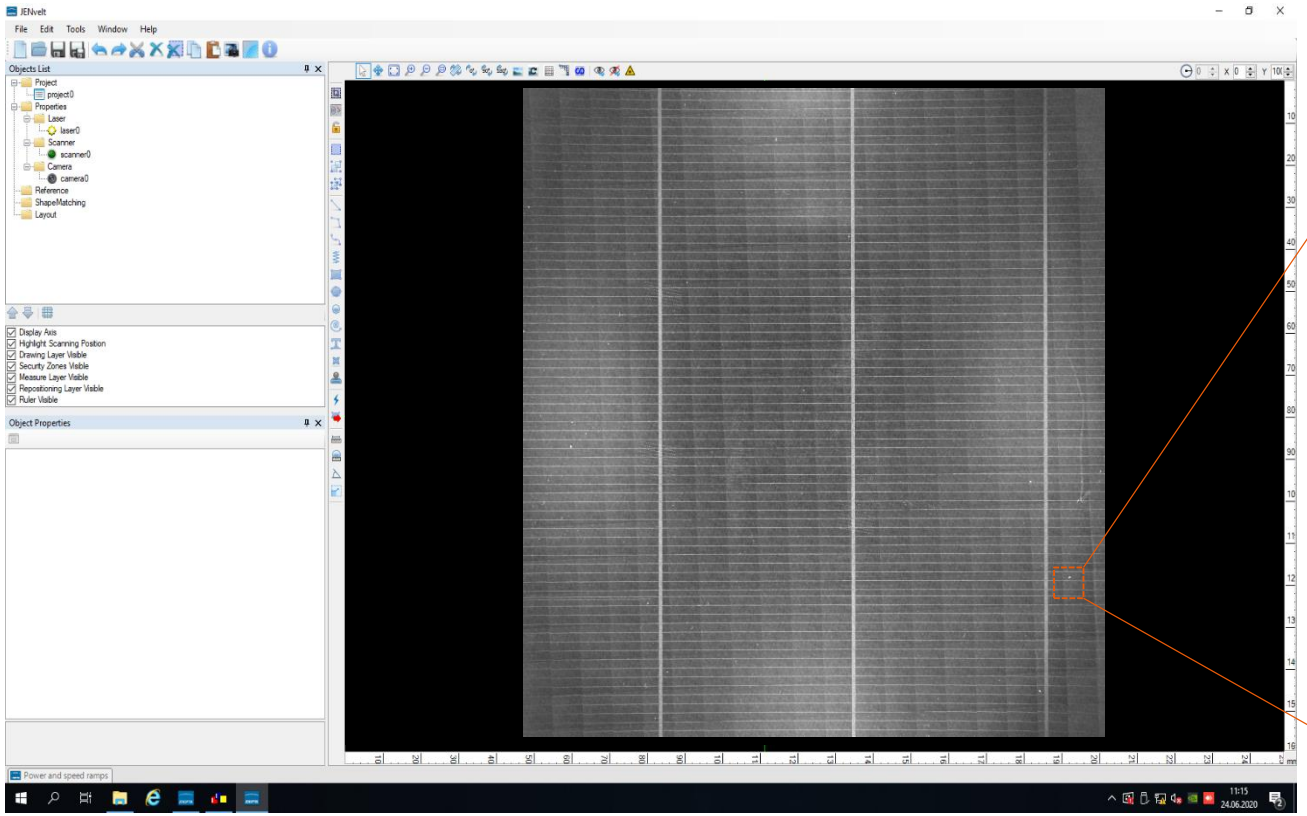
- Diode laser bars and chips
- Manufacturing of modules for medical applications and pumping applications
- Passively cooled up to 275W

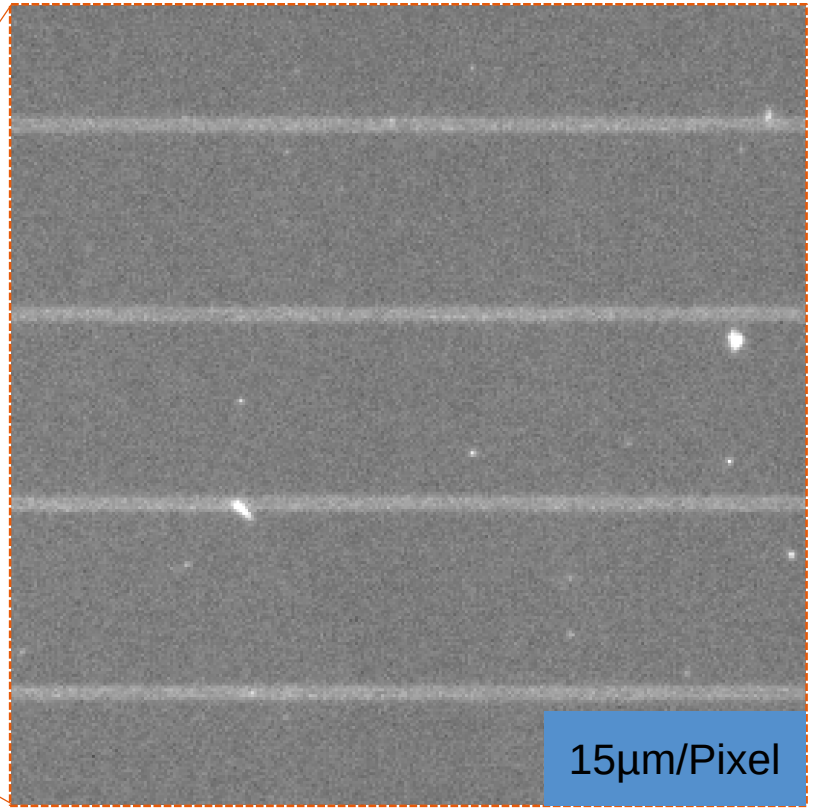
JENvelt®
use case: solar wafer processing

JENOPTIK
MORE LIGHT

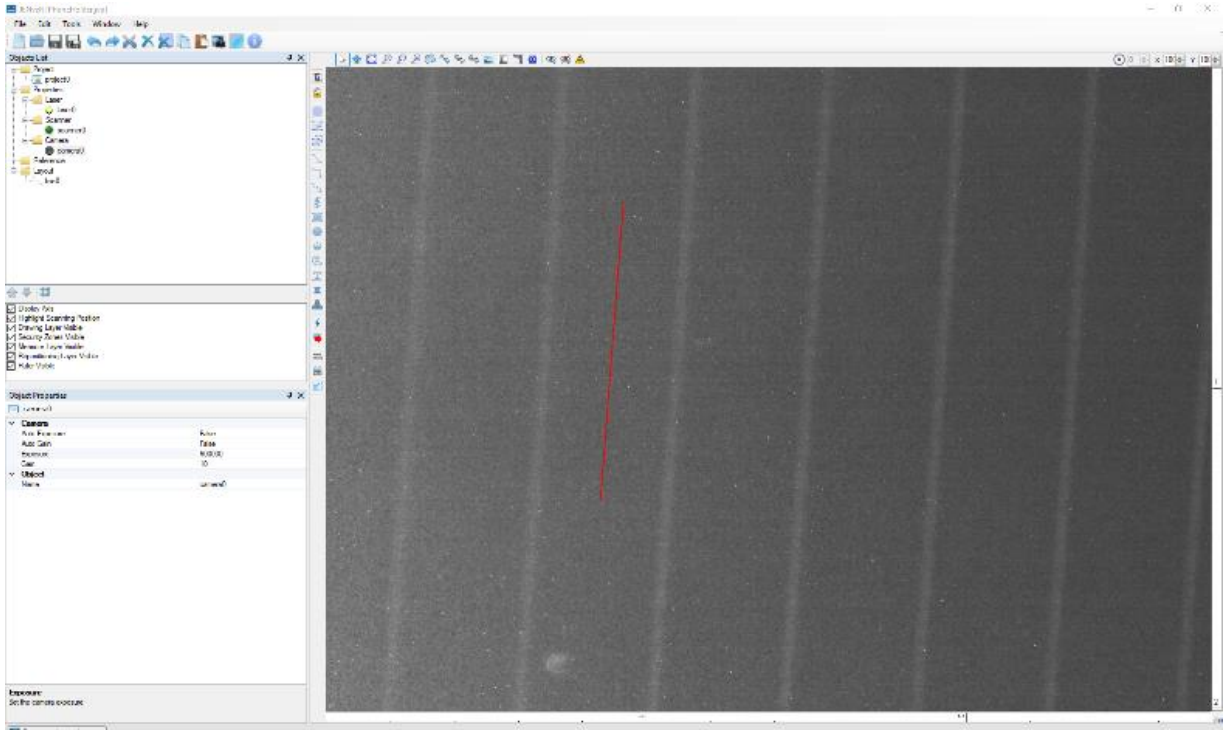
Scanning the full wafer

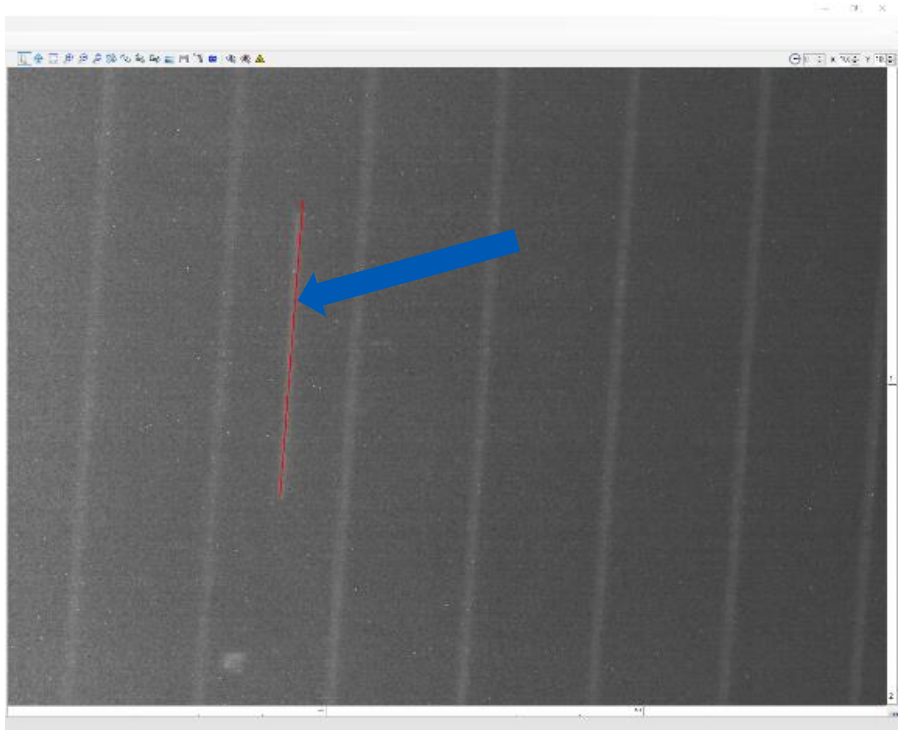
- optical head recognize / process / measure in one device
- Field of view = processing field (e.g. 170mm x 170mm)
- Huge resolution (15µm / pixel)



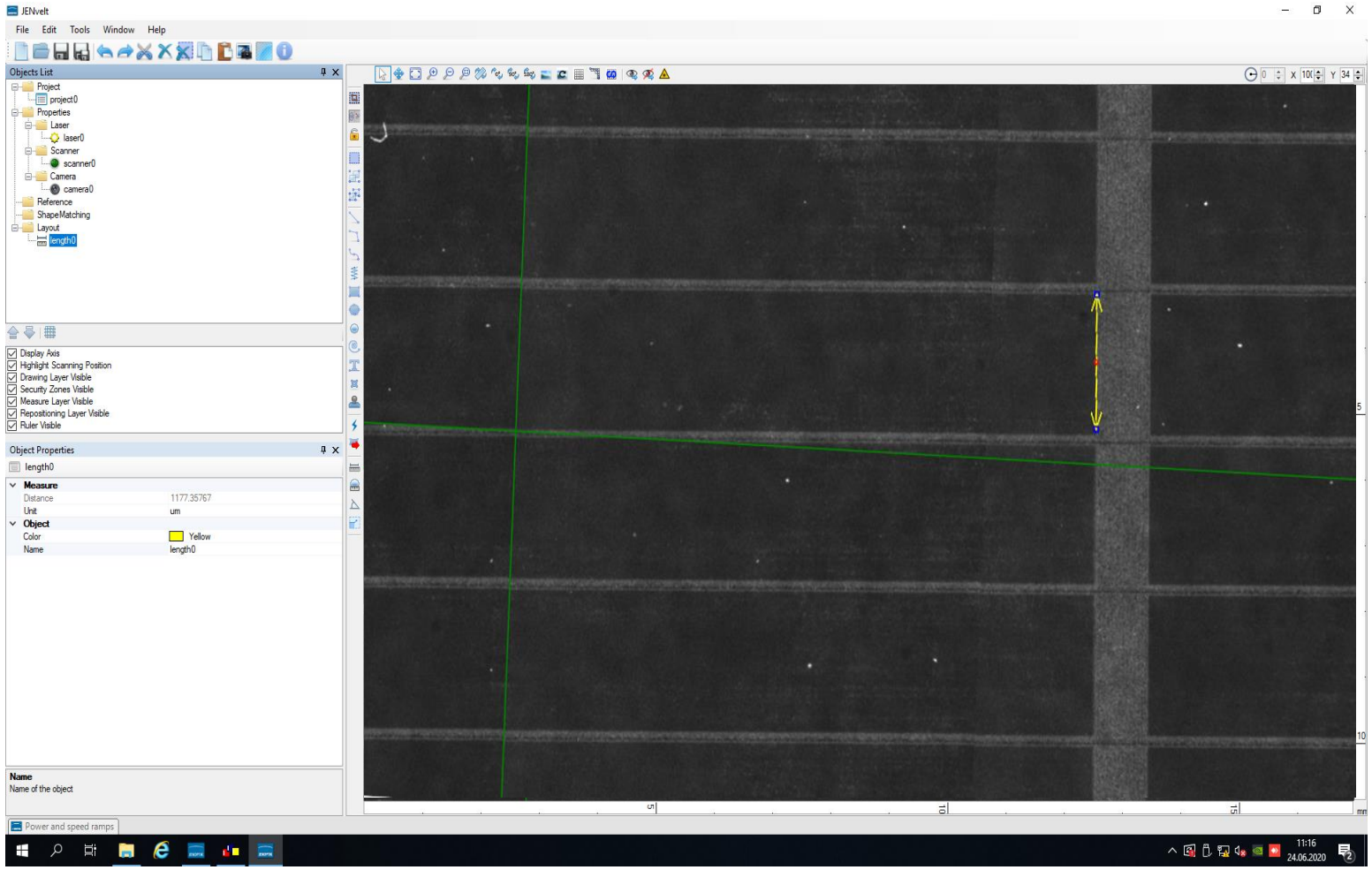


We hit always the right spot – what you see is what you get



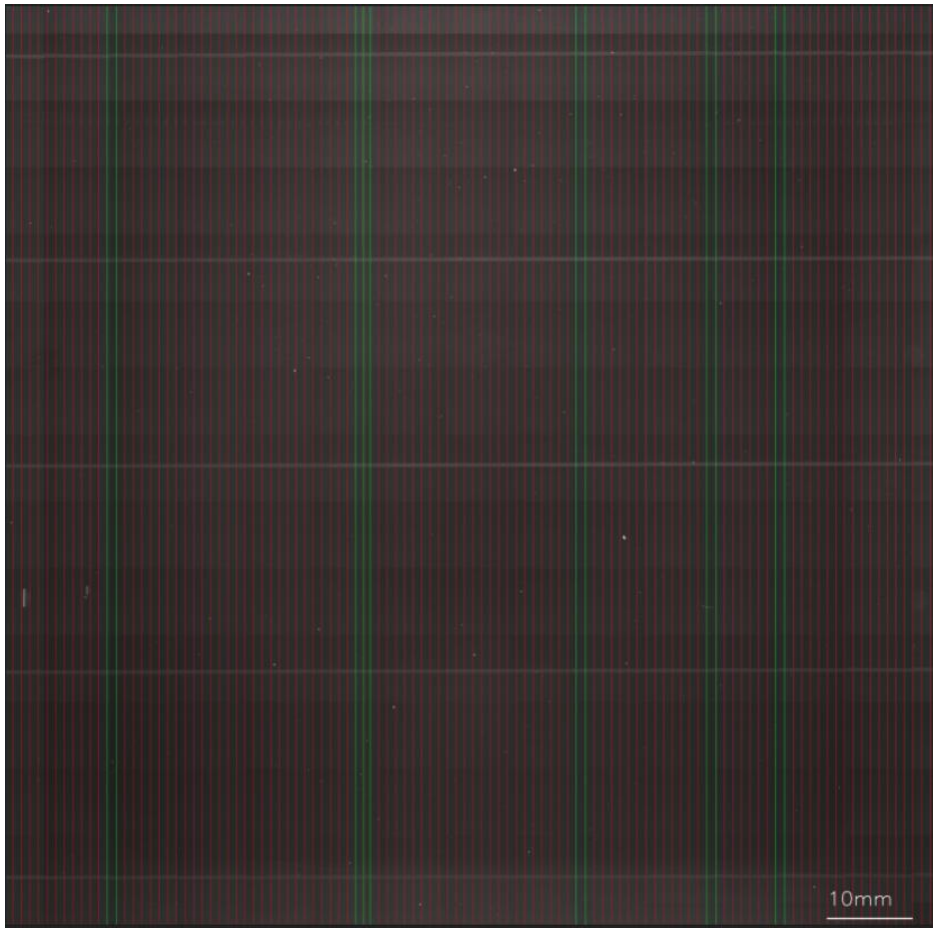


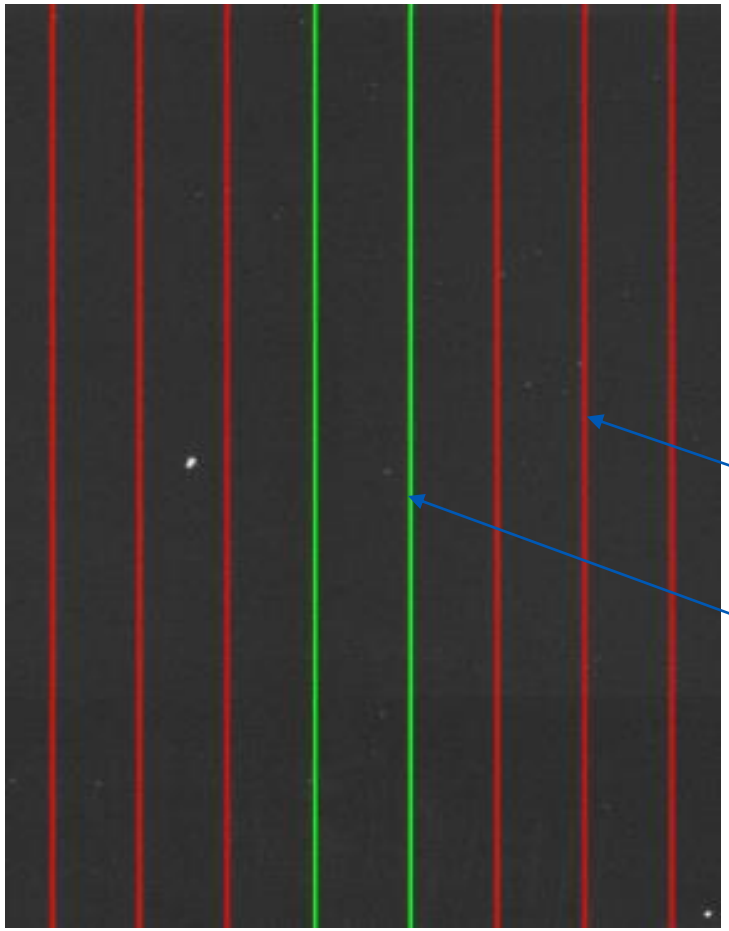
Measuring functionalities



- measure the line pitch of 1000µm
- measure the line width of ~100µm

Image Processing to find lines



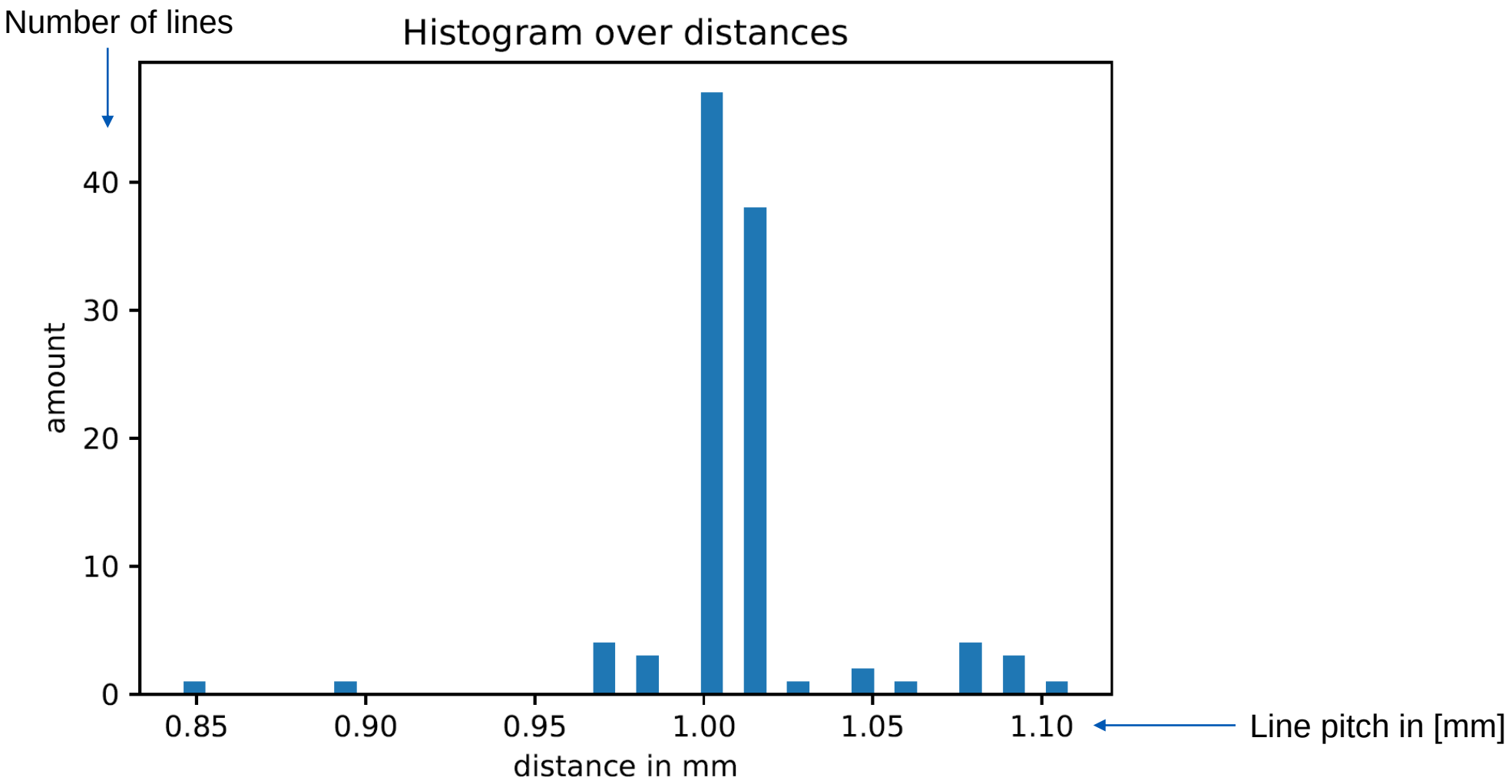


- We can define limits for IT and OT and do e.g. some statistics

Red
These lines have the correct distance
(i.e. they are in spec)

Green = N.OK,
i.e. too small or too large pitch

example: analysis on line distance



summary

- higher integration of optical devices/modules in combination with sensors and software for LMP
- JENvelt will be one implementation in this direction
- functional prototype units in our application lab ready for customer evaluation
- part of official funding project with focus on high speed processes in PV industry
  in combination with high accurate beam positioning and inline image processing

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MORE LIGHT

Thank you!