

# Measuring structured light Introducing a more unified approach

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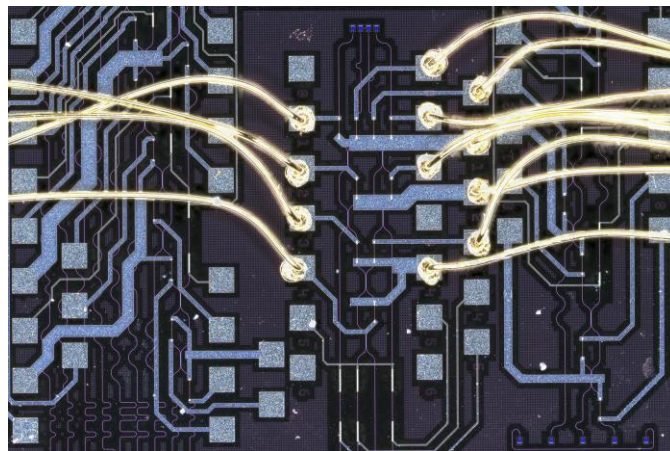
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Due to its wide range of applications, including imaging techniques, spectroscopy and many others, structured light has become increasingly popular among the scientific community in recent years. This increased interest has led to the development of a large array of techniques used for the generation as well as the detection of structured light beams. [1]

While more conventional measurement devices often rely on commonly available optical components, which lead to comparatively large setups that are furthermore regularly limited in the number of properties that they can detect, the goal of the hereby introduced SuperPixels chip is to overcome some of those restrictions. [2]

Relying on a photonic integrated circuit, which can easily be tailored to an exact use case, it is possible to not only combine different measurement techniques but also drastically reduce the size of the device.

This talk will first focus on an overview of structured light in general and an introduction to common measurement setups will be given. The inner workings of the SuperPixels chip, which heavily rely on a mesh of Mach-Zehnder interferometers and the general measurement scheme will be discussed. Lastly, the focus will be put on the experimental setup that was used for testing a prototype of the chip and some results will be presented.



*Figure 1: Microscope image of a part of a SuperPixels chip.*

[1] Wang, J., Liang, Y., *Frontiers in Physics*, 9(688284), 2021

[2] <https://www.superpixels.org>