While many applications require that objects be measured to determine their color coordinates, conventional technology is often too costly, especially when the application calls for large numbers of sensors.

**Functionality**

To create the spectral selectivity, we utilize nano-structured metal layers in combination with a CMOS technology process. Through the excitation of surface plasmon resonance, we create a high degree of spectral selectivity. This approach creates the opportunity to configure the spectral functionality of a filter through the targeted use of perforated nano structures in the metal layers of the chip, which have a constant thickness.

**Characteristics**

- Realization of multiple spectral channels on a chip in a single process step
- Calculation of the CIE norm valent system X, Y, Z coordinates and the chromaticity x, y values
- Accuracy $\Delta x, \Delta y < 0.002$ (equivalent to 2 MacAdam ellipses depending on the color location)
- 12-channel spectral estimation
- Integrated preamplifier with configurable gain and offset correction

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Fields of application

- LED monitoring and control for a wide range of environments such as LCD backlighting and general lighting systems
- Color sensors for industrial automation and the automobile
- Configurable spectral functionality
- Miniaturized multispectral sensors for analyzing gases and liquids

Other applications

The use of fine nano-structured wire mesh enables the realization of polarization filters for:

- Improved white balancing in cameras
- High-resolution polarimeters without moving parts for chemical materials analysis
- Polarization cameras for quality monitoring
- Detecting manufacturing flaws such as microdefects in glass products
- Road monitoring cameras with adjustable polarization for suppressing interfering reflections

Benefits

- High reliability thanks to monolithic integrated color sensor technology
- Cost-effective CMOS-based production process
- Customer-specific filter performance

Services

- Application-specific filter and sensor design
- Integrated signal processing
- ASIC development
- Feasibility studies
- Evaluation board for carrying out your own measurements
- Small-batch delivery