

## INNOVATIVE TECHNOLOGIES FOR THE FUTURE

### Physical Technology

#### 16799 Laser LCoS high resolution headlamp

##### Introduction / Abstract

The invention "Laser LCoS high resolution headlamp" concerns the field of high-resolution headlights, optical simulations and laser illumination. Compared to the state of the art, the efficiency of the laser diodes to be used can be significantly improved with LCoS and various practical functions in the field of "intelligent traffic" and "autonomous driving" can be realized.

##### Technology Readiness Level

TRL 9

##### Patent situation

Country: EP

Code: 3 689 677 A1

Status: pending

##### Angebot

License for commercial use, cooperation possible

##### Keywords

headlamp, high, LCoS, polarization, resolution, RGB

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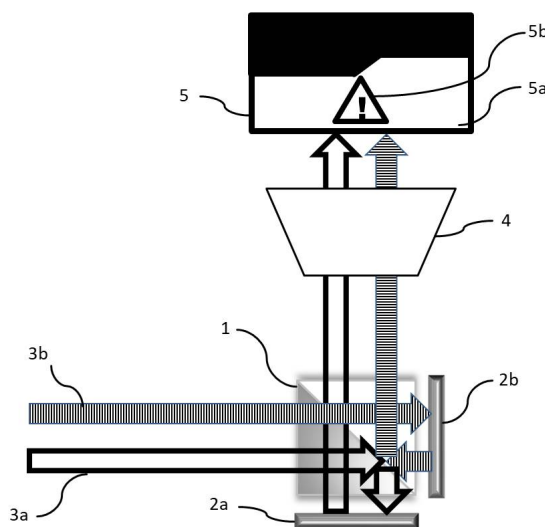


Fig. 1: Laser LCoS spotlight with: 1. polarization beam splitter, 2. liquid crystal on silicon (LCoS), 3. light, 4. projection lens, 5. functional area, 6. illumination and projection light distribution

##### Background

Micro-pixel LEDs, DMD / DLP, LCD, Liquid Crystal on Silicon (LCoS) and scanners are used in headlight systems. Currently, innovative functions such as glare-free high beam or road projections are being implemented to increase traffic safety and driving comfort. Chromatic road projections are particularly promising because they can generate the light information on the road during the day and at night more conspicuously for the driver himself and other road users.

### Innovation / Solution

The invention concerns a "laser LCoS headlamp" (see Fig. 1), which makes it possible to produce high-energy illumination of a vehicle apron with white light in combination with high-energy chromatic images on the road surface. By different arrangements of laser diodes different polarization directions can be made available.

### Benefits

- The efficiency of lasers with LCoS can be significantly improved.
- The invention allows various practical functions in the area of "intelligent traffic" and "autonomous driving" to be realized.

### Fields of application

The invention is in the field of application of the automotive industry, the lighting industry and entertainment.