



# Wireless Miniature Microscope For Near-Field Image-Capturing

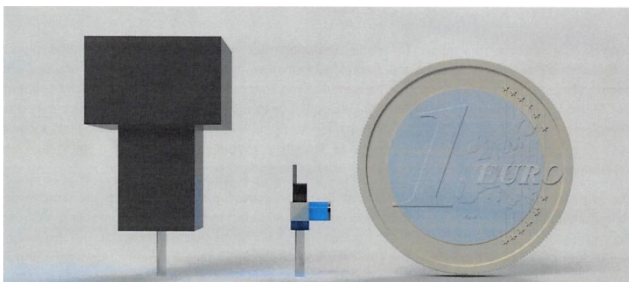
**Keywords:** neuroscience, fluorescence imaging, miniature microscope, in vivo imaging

## INVENTION NOVELTY

Researchers from Leibniz Institute for Neurobiology and Otto von Guericke University Magdeburg jointly developed a novel miniature head-mounted fluorescence-microscope for near-field imaging of neuronal circuit function of living animals. Weight and size of the device allow for natural behavior of the monitored animal, even in small rodent models, and ensures smooth and jitter-free imaging.

## VALUE PROPOSITION

*In vivo* imaging of neuronal activity has become a valuable research tool for modern neuroscience. However, size and weight of currently available imaging solutions impair natural behavior of small study animals and therefore compromise the validity of the experiments. The novel miniature microscope overcomes these limitations by a novel monolithic architecture, allowing for a very small and lightweight device.



*Size comparison between a state of the art system (left), the novel miniature microscope (middle) and a 1€ coin (right).*

## TECHNOLOGY DESCRIPTION

The novel fluorescence-microscope comprises a monolithic architecture, where digital image sensor and objective lens are firmly connected without a mechanically separating interface. Due to this design, very small components can be used, significantly reducing size and weight of the device compared to so far available state of the art systems. For neuronal genetic indicator imaging, the novel device can be placed on the head of small laboratory animals (e.g. mice) without impairing motility and natural behavior of the animal. Furthermore, the new architecture significantly improves image stability, especially during movement, and prevents dust accumulation between the optical parts that can reduce image quality.

## COMMERCIAL OPPORTUNITY

In-licensing or collaboration for further development is possible.

## DEVELOPMENT STATUS

A prototype is in development.

## PATENT SITUATION

European patent application (EP 3874311A1) with priority of 2018 is pending.

