

// ACTIVELY SWITCHED BEAM SPLITTER

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HINTERGRUND

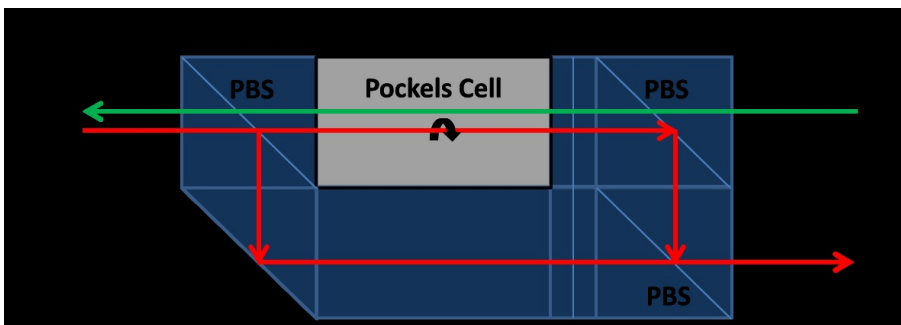
In order to separate excitation light travelling to a sample from light emitted by a sample in fluorescence microscopy, dichroic beam splitters are usually used. Different beam splitters are required depending on the light spectrum involved. This requires constant changing and acquisition of fluorescence dye-specific dichroic mirrors and corresponding readjustments of the microscope.

DKFZ researcher Dr. Johann Engelhardt developed an actively switched beam splitter based on polarizing beam splitters in combination with a Pockels cell (see Figure). The resulting monolithic beam splitter is spectrally gap-free and can be used for all fluorescent microscopes using pulsed excitation light.

A passive variant with a Faraday rotator instead of a Pockels cell successfully verified the concept experimentally.

LÖSUNG

- Spectrally gap-free beam splitter
- No maintenance or astigmatism



Model of a monolithic actively switched beam splitter (PBS = polarizing beam splitter)

dkfz. DEUTSCHES
KREBSFORSCHUNGSZENTRUM
IN DER HELMHOLTZ-GEMEINSCHAFT

Deutsches
Krebsforschungszentrum DKFZ

Dr. Frieder Kern
+49-6221-42-2952
f.kern@dkfz.de
www.dkfz.de

ENTWICKLUNGSSTAND

Prototyp

CATEGORIES

//Medizinische
Geräte //Medizintechnik

VORTEILE

- Monolithic design
 - Particularly suitable for STED and RESOLFT microscopy
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ANWENDUNGSBEREICHE

The actively switched beam splitter is particularly suitable for fluorescence microscopy applications that require several or broader, and even overlapping, light spectra of illumination and detection, as in STED and RESOLFT microscopy. Literally all research fluorescent microscopes using pulsed excitation light can benefit from the presented spectrally gap-free beam splitter.
