

28 February 2014

Non-mydriatic, wide field, fundus video camera

[Bernhard Hoehner](#) ([/profile/Bernhard.Hoehner-2918](#)); [Peter Voigtmann](#) ([/profile/notfound?author=Peter_Voigtmann](#)); [Georg Michelson](#) ([/profile/notfound?author=Georg_Michelson](#)); [Bernhard Schmauss](#) ([/profile/Bernhard.Schmauss-11530](#))

[Author Affiliations + \(\)](#)

[Proceedings Volume 8930, Ophthalmic Technologies XXIV; /conference-proceedings-of-spie/8930.toc](#) 89300K (2014); doi: 10.1117/12.2036970

Event: [SPIE BiOS](#) ([/conference-proceedings-of-spie/browse/SPIE-Photonics-West/SPIE-BiOS/2014](#)), 2014, San Francisco, California, United States

ARTICLE

FIGURES &
TABLES

REFERENCES

Abstract

We describe a method we call "stripe field imaging" that is capable of capturing wide field color fundus videos and images of the human eye at pupil sizes of 2mm. This means that it can be used with a non-dilated pupil even with bright ambient light. We realized a mobile demonstrator to prove the method and we could acquire color fundus videos of subjects successfully. We designed the demonstrator as a low-cost device consisting of mass market components to show that there is no major additional technical outlay to realize the improvements we propose. The technical core idea of our method is breaking the rotational symmetry in the optical design that is given in many conventional fundus cameras. By this measure we could extend the possible field of view (FOV) at a pupil size of 2mm from a circular field with 20° in diameter to a square field with 68° by 18° in size. We acquired a fundus video while the subject was slightly touching and releasing the lid. The resulting video showed changes at vessels in the region of the papilla and a change of the paleness of the papilla.

© (2014) COPYRIGHT Society of Photo-Optical Instrumentation Engineers (SPIE). Downloading of the abstract is permitted for personal use only.

Citation [Download Citation](#)

[Bernhard Hoehner](#) ([/profile/Bernhard.Hoehner-2918](#)), [Peter Voigtmann](#), [Georg Michelson](#), [Bernhard Schmauss](#) ([/profile/Bernhard.Schmauss-11530](#)), "Non-mydriatic, wide field, fundus video camera", Proc. SPIE 8930, Ophthalmic Technologies XXIV, 89300K (28 February 2014); doi: 10.1117/12.2036970; <http://dx.doi.org/10.1117/12.2036970> (<http://dx.doi.org/10.1117/12.2036970>)

PROCEEDINGS

7 PAGES

DOWNLOAD PDF

SAVE TO MY LIBRARY

SHARE

GET CITATION

KEYWORDS

Video

Cameras

Eye