

The 3rd
INTERNATIONAL
CONFERENCE
ON THE PHYSICS OF OPTICAL
MATERIALS AND DEVICES

ICOM 2012

BOOK OF ABSTRACTS

**The 3rd International Conference on the Physics
of Optical Materials and Devices**

BOOK OF ABSTRACTS

**Editors: Dr. Miroslav Dramićanin
 Dr. Bruno Viana**

Publisher: Agencija FORMAT, Belgrade

Print run: 250 copies

ISBN: 978-86-7306-116-0

August 2012, Belgrade, Serbia

ICOM 2012

**The 3rd International Conference on the Physics
of Optical Materials and Devices**

BOOK OF ABSTRACTS

Belgrade, Serbia
September 3rd – September 6th, 2012

TIME RESOLVED ANALYSIS OF ALLOPHYCOCYANIN FLUORESCENCE EMISSION

M. S. Rabasović^a, D. Šević^a, M. Terzić^{a,c}, A. Delneri^b, M. Franko^b and B. P. Marinković^a

^a*Institute of Physics, Belgrade, P.O. BOX 68, University of Belgrade, Serbia*

^b*Laboratory for Environmental Research, University of Nova Gorica, Slovenia*

^c*Faculty of Science, University of Novi Sad, Serbia*

Aim of this work is time resolved analysis of cyanobacterial pigment allophycocyanin (APC) fluorescence emission. Allophycocyanin is located at the core of the phycobilisome, a light-harvesting apparatus in cyanobacteria. Together with other phycobiliproteins, such as phycocyanin and phycoerythrin, APC is responsible for efficient capturing and funneling electronic excitation to the membrane-bound photosynthetic reaction centers (PS II) where fast electron transfer occurs with high efficiency, converting solar energy to chemical energy [1]. Our time resolved laser induced fluorescence experimental setup is described in [2]. First results regarding cyanobacterial pigment phycoerythrin are presented in [3]. Because APC absorption peak is on longer wavelength than our OPO range (320–475 nm), we also used second harmonic of Nd:Yag laser for sample excitation, Fig 1. Value of 5.3306 ns (upper left corner) is FWHM value of fluorescence, provided promptly by streak camera software. Estimated lifetime of fluorescence centered around 660 nm shown on Fig 1, after deconvolution procedure is 2.5 ns.

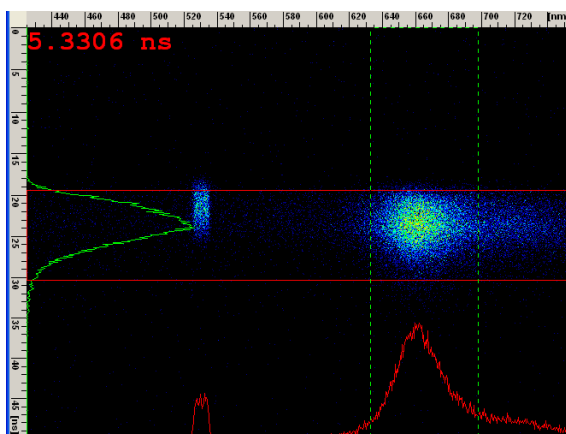


Fig 1. Fluorescence streak image of APC (25 $\mu\text{g/mL}$) in KPi (0.1 M potassium phosphate) buffer pH 7 excited by 532 nm laser component.

Acknowledgments: This work has been done within the project MES RS OI 171020 and ESF COST Action FA0906 UV4growth.

- [1] Liming Ying and X. Sunney Xie, *J. Phys. Chem. B* 102, (1998) 10399-10409.
- [2] Maja S. Rabasovic, Dragutin Sevic, Mira Terzic and Bratislav P. Marinkovic, *Nucl.Instrum. Meth. B.* 279 (2012) 16-19.
- [3] M. Terzić, M. S. Rabasović, D. Šević, A. Delneri, M. Franko and B. P. Marinković, *Proc. 2nd National Conference on Electronic, Atomic, Molecular and Photonic Physics (CEAMPP2011)*, 2011, Belgrade, Serbia, p.128.