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BOOK OF ABSTRACTS

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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.

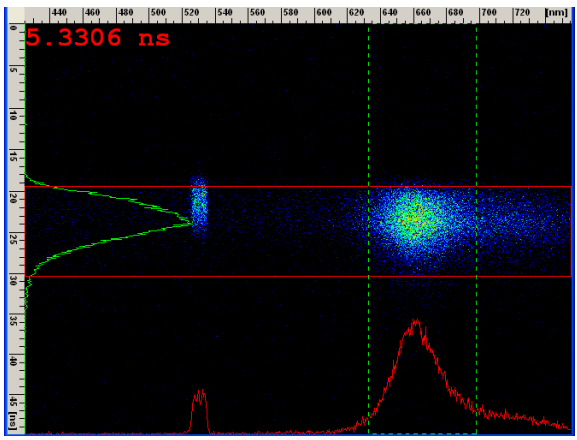

Fig 1. Fluorescence streak image of APC (25 µg/mL) in KPi (0.1 M potassium phosphate) buffer pH 7 excited by 532 nm laser component.

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[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.