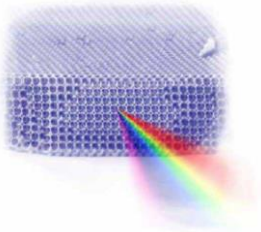
PHOTONICS CENTER

UNIVERZITET U BEOGRADU
Institut za fiziku



Konferencija

Jedanaesta radionica fotonike (2018)

Zbornik apstrakata

PHOTONICS CENTER

Kopaonik, 11–14.3.2018.

Konferencija **Jedanaesta radionica fotonike (2018)**

ZBORNIK APSTRAKATA

Kopaonik 11-14.03.2018.

Izdaje

Institut za fiziku Beograd

Za izdavača

Dr Aleksandar Bogojević, direktor

Urednik

Dr Dragan Lukić

Tiraž

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Štampa

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dr Marina Lekić, naučni saradnik Instituta za fiziku (predsednik Odbora)
dr Darko Vasiljević, viši naučni saradnik Instituta za fiziku
dr Aleksander Kovačević, viši naučni saradnik Instituta za fiziku (urednik Sajta)
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Dr Aleksander Kovačević

Sponzori Konferencije:

Ministarstvo prosvete, nauke i tehnološkog razvoja

Optičko društvo Srbije

Zahvalnica

Organizacioni odbor Konferencije „Jedanaesta radionica fotonike (2018)” se zahvaljuje za finansijsku podršku Konferencije:

- Optičkom društvu Srbije

- Ministarstvu prosvete, nauke i tehnološkog razvoja Republike Srbije

- Projektu III 45016 Ministarstva prosvete i nauke Republike Srbije i rukovodiocu Projekta dr Branislavu Jelenkoviću.

Urednik Zbornika

Dr Dragan Lukić

Sadržaj

Conference program

Sunday, March 11th

16.00 -16.30	Refreshments and Opening ceremony

Chairman: Bratislav Marinković

16.30 - 17.00	**Dejan Pantelić** Photophoresis at atmospheric pressure
17.00 - 17.30	**Dejan Zečević** Electrical structure of dendritic spines: a voltage imaging study with patterned illumination based on computer-generated holography (CGH).
17.30 – 17.40	Coffee break
17.40 – 18.10	**Biljana Babić** Fast, cost-efficient, synthesis of shining carbon dots

Chairman: Hrvoje Skenderović

20.00 - 20.30	**Saša Dujko** Electron transport, propagation of streamers and the possibility of lightning in the atmosphere of Titan
20.30 - 20.50	**Nataša Todorović** Development of method for obtaining free fungal protoplast in *Phycomyces blakesleeanus* by cell wall microsurgery using Ti:Sa laser
20.50 - 21.10	**Marko Nikolić** High pressure luminescence properties of $Y_2MoO_6:Sm^{3+}$ and $Y_2MoO_6:Eu^{3+}$
21.10 - 21.20	Coffee break
21.20 – 21.40	**Aleksander Kovačević** Formation of LIPSS on Al/Ti thin metal films by scanning of low-fluence femtosecond beam during cross-directional scanning
21.40 – 22.00	**Boban Zarkov** Measurement capabilities of Laboratory for photometry and radiometry in Directorate of measures and precious metals
22.00 – 22.20	**Pavle Anđus** Историјат наше Биофизике у време и после Југославије

Monday, March 12th

16.00 -16.30	Refreshments

Chairman: Ljupčo Hadžievski

16.30 - 17.00	**Pavle Anđus** AUTOIGG: AUTOMATED FUNCTIONAL SCREENING OF IgGs FOR DIAGNOSTICS OF NEURODEGENERATIVE DISEASES
17.00 - 17.30	**Francesco Cataliotti** A quantum phase-gate based on quantum Zeno dynamics
17.30 – 17.40	Coffee break
17.40 – 18.10	**Hrvoje Skenderović** Digital holography under restricted conditions

Chairman: Darko Vasiljević

20.00 - 20.30	**Bratislav Marinković** Photon interaction with (bio)molecules - Near-edge X-ray absorption fine-structure (NEXAFS) spectroscopy
20.30 - 20.50	**Igor Jakovcevski** Embryonic loss of HCN/h-channel function in mouse forebrain results in impaired neural progenitor proliferation and microcephaly
20.50 - 21.10	**Vladimir Damljanović** Symmetry induced electronic dispersions in two-dimensional materials
21.10 - 21.20	Coffee break
21.20 – 21.40	**Dragutin Šević** Effects of temperature on luminescent properties of $YVO_4:Eu^{3+}$ nanophosphor
21.40 – 22.00	**Olga Fedotova** Vortex Light Bullets Formation at Femtosecond Filamentation in Kerr Media
22.00 – 22.20	**Oleg Khasanov** Terahertz radiation efficiency in nanocomposite structures with large permanent dipole moment

Tuesday, March 13th

16.00 -16.30	Refreshments

Chairman: Pavle Anđus

16.30 - 17.00	**Srđan Antić** Vicissitudinous Nature of Action Potential Backpropagation in Cortical Pyramidal Neurons
17.00 - 17.30	**Vesselin Donchev** Surface Photovoltage Spectroscopy Studies of Optoelectronic Materials and Nanostructures
17.30 – 17.40	Coffee break
17.40 – 18.10	**Ljupčo Hadžievski** Multi sensor system for noninvasive detection of cardiovaskular pulsations of the human body

Chairman: Francesco Cataliotti

20.00 - 20.30	**Suzana Petrović** Laser surface texturing of Ti-based multilayers for biomedical application
20.30 - 20.50	**Marin Šoufek** History and achievements of SEM-FIB techniques
20.50 - 21.10	**Duška Popović** Optimal discrimination between *n* pure quantum states
21.10 - 21.20	Coffee break
21.20 – 21.40	**Marija Ćurčić** Towards realization of frequency doubled VECSEL for Rydberg spectroscopy in rubidium and potassium

21.40 – 22.00	**Dragan Lukić** Anidolic lighting for atelier
22.00 – 22.20	**Natalie Sauchyna-Imbro** Polymer–CNT composite fiber properties

Wednesday, March 14th

16.00 -16.30	Refreshments

Chairman: Aleksander Kovačević

16.30 - 16.50	**Branislav Jelenković** Slow propagation of pulses by Four-Way Mixing in Potassium vapor
16.50 - 17.10	**Svetlana Dmitrović** Synthesis and characterization of fluorescent spider silk coated with Eu-doped nanoceria
17.10 – 17.30	**Darko Vasiljević** Mechanical effects of photophoresis on nanometer scale structures
17.30 – 17.40	Coffee break
17.40 – 18.00	**Jelena Kršić** Exact Solutions for Perfect Transfer in Commensurate Waveguide Arrays
18.00 – 18.20	**Jelena Mitrić** Surface optical phonon-plasmon interaction in nano-dimensional CdTe thin films

20.00 -	Conference dinner

Apstrakti

Optimal discrimination between *n* pure quantum states

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Abstract. For quantum information processing it is very important to determine the state of a quantum system. We want to distinguish between the finite set of known possible states *n*, that is, we want to maximize the expected probability of a successful guess. In order to achieve this, we use the strategy of a general measurement (POVM), consisting of rank-one operators with measurement vectors closest to the given states (in squared norm). We refer to this as the Square-Root Measurements or SRM. We showed that in the case when the initial states are linearly independent, the SRM is given by the Löwdin basis. The SRM (and consequently the Löwdin basis) minimize the detection error.

We also want to compare the optimal measurements with respect to maximization of the success probability, and maximization of the information gain, in terms of the mutual information between two parties, Alice and Bob (also referred to as accessible information). This has applications in quantum information, such as characterization of mutual information in cryptographic protocols.