

Technical Program of the International Conference
**“DIGITAL SINGULAR OPTICS: APPLICATIONS AND
 FUNDAMENTALS – DSOAF2021”**

Registration of conference participants “DSOAF2021”

September 5, 2021 – 17⁰⁰ - 20⁰⁰
 September 6, 2021– 9⁰⁰ – 10⁰⁰

DAY 1 (September 6, 2021)

Opening speech	10.00 Rector V.I. Vernadsky Crimean Federal University Falaleev A.P.	OPENING CEREMONY CONFERENCES DSOAF2021
Section Chair Prof. Alexander Volyar		
Plenary	10-10 V.A. Soifer	PHOTONICS CENTURY
Plenary	10-45 A. Volyar E. Abramochkin E. Razueva Ya. Akimova M. Bretsko Yu. Egorov	CONTROL OF STABLE STATES OF STRUCTURED LIGHT BEAMS: PERTURBED SPIRAL VORTEX BEAMS
Invited	11-30 V.V. Kotlyar A.A. Kovalev	TOPOLOGICAL CHARGE OF SUPERPOSITION OF OPTICAL VORTEX
12 ⁰⁰ – 12 ³⁰ COFFEE BREAK		
Invited	12-30 V.P. Lukin P.A. Konyaev	PHASE CORRECTION CAPABILITIES AND LIMITATIONS DISTORTION OF OPTICAL WAVES IN A TURBULENT ATMOSPHERE
Invited	13-15 A.L. Sokolov	PROSPECTS FOR OF OPTICAL VORTEX APPLICATIONS IN SPACE ENGINEERING

13⁴⁵ – 14⁴⁰ DINNER

Section Chair Prof. **Viktor Kotlyar**

Plenary	14-40 Venediktov V. Yu. Kukaev A.S. Filatov Yu.V. Shalymov E.V.	METHODS FOR MEASURING ANGULAR VELOCITY BASED ON EMPLOYING CAVITIES OF WHISPERING GALLERY MODES
Plenary	15-25 Nikolay V. Petrov Maksim S. Kulya Andrei A. Gorodetsky Bogdan V. Sokolenko	BROADBAND TERAHERTZ VORTEX BEAMS: FORMATION, PROPERTIES AND HOLOGRAPHIC INSPECTION
Plenary	16-00 E. Abramochkin E. Razueva	MULTIPLE-TWISTED SPIRAL BEAMS
18-00 WELCOME PARTY (Conference Hall)		

DAY 2 (September 7, 2021)

ON-LINE (MOSCOW TIME)

Section Chair **Nikolay Petrov**

Invited	9-30 Naveen K. Nishchal	IMAGE ENCRYPTION USING VECTOR BEAM
Plenary	10-00 Kehar Singh	OPTICAL CRYPTOGRAPHY: A PERSONAL TOUR (2000-2019)
Invited	10-45 Kedar Khare Priyanka Lochab P. Senthilkumaran	PROPAGATION OF POLARIZATION SINGULAR BEAMS THROUGH ATMOSPHERIC TURBULENCE
Plenary	11-15 A.P. Vladimirov	SPECKLE OPTICS: ACHIEVEMENTS AND CHALLENGES
Plenary	12-00 E.A. Bibikova N.D. Kundikova A.A. Shulginov	EFFECTS OF THE SPIN-ORBITAL INTERACTION OF LIGHT, CLASSIFICATION AND SEARCH FOR NEW
Plenary	12-45 Yijie Shen	STRUCTURED LIGHT TOWARDS MULTIPLE DEGREES-OF-FREEDOM AND HIGHER DIMENSIONS
13-30 DINNER		
Plenary	14-30 Andrew Forbes	STRUCTURED LIGHT: TAILORED FOR PURPOSE
Plenary	15-15 Yashar Azizian	AIRY BEAMS: FROM FUNDAMENTAL TO APPLICATIONS
Section	16-00 Makenova N.A. Kanev F.Yu. Veretekhin I.D.	PROPERTIES OF ALGORITHMS FOR REGISTRATION OF OPTICAL VORTICES AND THEIR USE TO DETERMINE TRAJECTORIES OF VORTEX DISPLACEMENTS IN A LASER BEAM, PROPAGATING UNDER DIFFERENT CONDITIONS
16³⁰ – 17³⁰ POSTER SECTION (Conference Hall)		
18-00 DINNER		

DAY 3 (September 8, 2021)

Section Chair **Vladimir Venediktov**

Section	10-00 A.A. Kovalev V.V. Kotlyar D.S. Kalinkina	OFF-AXIAL ELLIPTIC LASER BEAMS INVARIANT TO PROPAGATION AND THEIR ORBITAL ANGULAR MOMENT
Invited	10-30 V.A. Sennikov P.A. Konyaev V.P. Lukin	PHASE-CONJUGATED ADAPTATION OF COHERENT STRUCTURAL LIGHT BEAMS ON TURBULENT PATHS
Section	11-00 S.S. Stafeev A.A. Kovalev V.V. Kotlyar.	TOROIDAL VORTICES IN TIGHT FOCUSING OF BEAMS WITH PHASE AND POLARIZATION SINGULARITIES
Section	11-30 D.V. Nesterenko	A COUPLED MODES MODEL FOR EXCITATION OF FABRY-PEROT MODES IN PLANAR STRUCTURES
12 ⁰⁰ – 12 ³⁰ COFFEE BREAK		
Section	12-30 S.S. Stafeev E.S. Kozlova A.G. Nalimov	REVERSE ENERGY FLOW AT THE FOCUS OF THE HYPERBOLIC SECANT LENS
Section	13-00 Prokopova D.V. Kotova S.P. Losevsky N.N. Samagin S.A	PHASE DIFFRACTION OPTICAL ELEMENTS BASED ON SPIRAL BEAMS OF LIGHT FOR THREE-DIMENSIONAL LOCALIZATION OF NANOSIZED OBJECTS
13-30 DINNER		
15-00 EXCURSION		

DAY 4 (September 9, 2021)

Section Chair **Evgeniy Abramochkin**

Invited	10-00 E. G. Tsiplakova J.-B. Perraud A. Chopard J.-P. Guillet E. G. Smolyanskaya P. Mounaix N. V. Petrov	EFFICIENCY COMPARISON OF PHASE RETRIEVAL ALGORITHMS IN TERAHERTZ FREQUENCY RANGE BASED ON INTENSITY DISTRIBUTIONS REGISTRATION
Section	10-30 Chernykh Aleksey	CHAIN OF OPTICAL VORTICES FORMED BY THE DOUBLE PHASE RAMPS
Section	10-50 A.M. Vyunyshev D.A. Ikonnikov S.A. Myslivets V.G. Arkhipkin	COMPLEX THREE-DIMENSIONAL LIGHT GRATINGS OF OPTICAL VORTICES
Section	11-10 A. N. Lepaev S. I. Ksenofontov O. V. Vasilieva A. V. Belyakov L. A. Kiprova	OPTICAL PROCESSING OF THE FLAME IMAGE OF A PYROTECHNICAL COMPOSITION
Section	11-30 Ognev M.Yu. Limov M.D. Osipov M.N.	BIOMETRIC VOICE AUTHENTICATION BASED ON SPECKEL INTERFEROMETRY AND WAVELET TRANSFORMATIONS
Section	11-50 V.Yu. Venediktov K.N. Gavril'eva A.A. Sevryugin E.V. Shalymov A.L. Sokolov	CONTROL OF STRUCTURED LIGHT IN A POLARIZED INTERFEROMETER
Section	12-10 Aleksey V. Chernykh Nikolay V. Petrov	ANALYTICAL DESCRIPTION OF VORTEX TRAJECTORY DURING SEQUENTIAL BLOCKING OF SINGLE CHARGED LAGUERRE-GAUSSIAN BEAM
Section	12-30 A.M. Vyunyshev N.N. Davletshin D.A. Ikonnikov F.A. Baron V.S. Sutormin	RESTORATION OF PHANTOM IMAGES USING LC CELL AS A SPECKLE-STRUCTURE GENERATOR
Section	12-50 Nikolai S.Kazak Gennadii V. Kulak	THE ACOUSTO-OPTICAL FILTRATION OF BESSEL LIGHT

	Grigori V. Krokh Petr I. Ropot	BEAMS IN TELLURIUM CRYSTALS
13 ¹⁰ -14 ⁰⁰ DINNER		
Section Chair Vladimir Lukin		
Section	14-00 Lapin Boris Barshak Elena Yavorsky Maxim Alexeyev Constantine	TOPOLOGICAL RESONANCES IN VECTORIAL FIBER LOOP RESONATORS
Section	14-20 Sergeev R.N. Osipov M.N	ESTIMATION OF THE SPECKLES AVERAGE SIZE IN PROCESSING TWO-EXPOSITION SPECKL PHOTOS
Section	14-40 N.A. Ivliev V.V. Podlipnov S.N. Khonina	MICROSTRUCTURING OF THE SURFACE OF AZOPOLYMERS BY SINGULAR LASER BEAMS
18-00 BANQUET		
DAY 5 (September 10, 2021) 10-00 CLOSING CEREMONY OF THE CONFERENCE DSOAF'2021		

POSTER SECTION

DAY 2 (September 7, 2021) 16³⁰ – 17³⁰

RECOVERING OF SPIRAL VORTEX BEAMS AFTER POLYGONAL PERTURBATIONS

Ya. Akimova, M. Bretsko, Yu. Egorov, V. Volyar

THREE-WAVE HOLOGRAPHY OF MULTI-DISPERSED AEROSOL WITH SHIELDING

Arapov Yu.D., Dvornichenko M.E., Kamenev V.G., Kubasov P.V., Turkin V.N

INTENSITY MOMENTS TECHNIQUE AS A SIMPLE AND RELIABLE TOOL FOR MEASURING 3D VORTEX SPECTRA OF STRUCTURED BEAMS

M. Bretsko, Ya. Akimova, Yu. Egorov, V. Volyar

DETERMINATION OF THE DISPERSE MEDIUM PARAMETERS ON THE BASIS OF LIGHT SCATTERING

Ismailov Sh.M., Arapov Yu.D., Kamenev V.G.

FORMATION OF OPTICAL TRAPS BY AZIMUTAL DIFFRACTIVE OPTICAL ELEMENTS

S.V. Ganchevskaya, R.V.Skidanov

ACOUSTOOPTIC TRANSFORMATION OF GAUSSIAN LIGHT BEAMS INTO VORTEX BESSEL ONES UNDER CONDITION OF INTERNAL CONICAL REFRACTION

Gennadii V. Kulak, Aleksei P. Ropot, Vladimir N. Bely

SPECIFIC FEATURES OF SINGULAR BEAM PROPAGATION IN THE OPTICAL COMMUNICATION LINE

Kanev F.Yu., Makenova N.A., Veretekhin I.D.

NUMERICAL STUDY OF THE INFLUENCE OF THE SPIRAL ZONE PLATES PARAMETERS ON THE LONGITUDINAL COMPONENT OF THE UMOV-POINTING VECTOR OF FORMED VORTICES

E.S. Kozlova

PORTABLE DIGITAL HOLOGRAPHIC MICROSCOPE PRODUCED USING ADDITIVE TECHNOLOGIES

Khurchak A.P., Georgieva A.O., Petrov N.V.

PROPAGATION OF VORTEX-FREE AND VORTEX PARTIALLY COHERENT BESSEL-GAUSSIAN BEAMS IN A HOMOGENEOUS MEDIUM

Lukin I.P.

STUDY OF THE STATE OF BIOLOGICALLY ACTIVE TISSUES BY THE METHOD OF STOKES POLARIMETRY

Onikienko E.V., Rybas A.F.

FORMATION AND SELECTION OF VORTEX BEAMS BY DIFFRACTION OPTICS FOR ATMOSPHERIC COMMUNICATION SYSTEMS

R.V. Skidanov, S.N. Khonina, S.V. Karpeev, N.A. Ivliev, V.V. Podlipnov, S.V. Ganchevskaya

FIELD DYNAMICS OF SPATIAL OPTICAL TRAPS FORMED BY INTERFERENCE OF SEVERAL LASER BEAMS

Sokolenko B.V., Shostka N.V., Poletaev D.A

DIGITAL HOLOGRAPHIC MICROSCOPY OF OPTICALLY TRAPPED PARTICLES IN A LIQUID MEDIUM

Sokolenko B.V., Shostka N.V., Prisyazhnyuk A.V.

ESTIMATION OF THE RESOLUTION CAPACITY OF THE SCANNING VORTEX MICROSCOPY OF OPTICALLY SMOOTH OBJECTS

Sokolenko B.V., Shostka N.V., Poletaev D.A., Yakubov S.I.

DEVELOPMENT OF THE HOLOGRAPHIC MICROSCOPE WITH THE GEOMETRIC PHASE LENS AND PARALLEL PHASE-SHIFTING CAMERA

Aleksey V. Chernykh, Alexandra O. Georgieva, Aleksei S. Ezerskii, Nikolay V. Petrov

EXPERIMENTAL STUDY OF THE GEOMETRIC SPIN HALL EFFECT

A. A. Shulginov, N. D. Kundikova, E. A. Bibikova