



The **CREA**tion of the Department of Physical Chemistry of Biological Sys**TE**ms [CREATE] 666295 — CREATE — H2020-WIDESPREAD-2014-2015/H2020-WIDESPREAD-2014-2

Report on the final plan of the use and dissemination of foreground [Deliverable D.7.2]

Level of dissemination: Public

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1. Introduction

The overall objective of the CREATE project is **to unlock**, **develop and extend research potential of the Institute of Physical Chemistry**, **the Polish Academy of Sciences** (IPC) through establishing within the Institute a new Department of Physical Chemistry of Biological Systems, led by reputable scientist, specialist in biology, or linked biology and chemistry/or physics. Undertaken actions were designed **to reinforce excellence of IPC** and **to establish partner relations with international scientific units**, in particular – from the European Research Area.

This documents describes the activities that IPC has already carried out during the project implementation and still expects to develop with the purpose of allowing the dissemination and use of the foreground at the end of the project in support of an optimal exploitation of its results.

In general, the project dissemination activities aimed to effectively communicate research results to the IPC community, targeted researchers, business, policymakers and other stakeholders and to raise awareness and increase the level of engagement of the community.

Under this report we describe the following dissemination activities: research publications, conferences talks & posters, symposia, websites, patents and educational activities, videos and other electronic publications, press notes. In total 31 publications and 23 press notes/informational releases have been produced so far. In three successive years we organised 1 conference, 3 symposia, 18 interdisciplinary lectures of renowned scientists, 16 business lectures. During the conferences the ERA Chair members delievered 46 conference talks and presented 22 posters. We have organised multiple events popularising science and widely shared our experience on the ERA Chairs programme with partners.

The CREATE results were published in media addressed to different kinds of readers ranging from articles in peer-reviewed scientific journals to popular science articles on websites and in magazines.

Under this document we explan the research dissemination and exploitation system in place at IPC and specify dissemination and exploitation measures taken under the CREATE project aimed to target a different audience.

2. The use and dissemination of the foreground at IPC

To expand the impact of CREATE, we placed particular emphasis on dissemination & exploitation of research results of the ERA Chair at IPC. Undertaken dissemination measures aimed to:

- share research results with the scientific community to contribute to the progress of science,
- apply research results (accountability towards funders and more widely society),
- increase the visibility of the ERA Chair and inform about IPC research excellence and reliability to our stakeholders, incl. taxpayers, policymakers,
- expand IPC network and enhance our capability to collaborate with the business sector.

IPC has permanent units supporting dissemination & exploitation of research results and they were also engaged in the dissemination of the CREATE project's results.

Permanent bodies at IPC engaged in exploitation and dissemination & proposed tools				
the Representative for the IPC promotion & cooperation with the industry [prof Robert Holyst, CREATE Project Coordinator]	<u>commercialisation:</u> mentoring & advising the researchers on commercialisation (spin out/off company, internal commercialisation initiatives w/o spinning), contact point for the industry, coordinating initiatives " <u>IPC for the Companies</u> "			
the Department for large European projects & business collaboration [head M. Sc. Agnieszka Tadrzak, CREATE Project Manager]	<u>bridging researchers & business:</u> implementation of the action " <u>IPC for the Companies</u> ", advising the researchers on commercialisation, joint projects with the companies, lectures delivered by business representatives			
the Representative for IPR [Piotr Cwalina]	<u>securing & offering IPR</u> : training on IPR, collaboration with patent attorneys, maintaining a database of IPC IPR, supporting researchers in protecting their IPR, formal aspects of research results commercialisation			
IPC library & Chief specialist for documentation and scientific information [Joanna Mądry, PhD; formerly – Małgorzata Krajewska, PhD]	<i>publishing</i> : assistance with open access, maintenance of an open repository, contact with publishers			
Deputy Director for Research [prof Adam Kubas]	collaboration & knowledge sharing: an international collaboration, overseeing commercialisation			
Science popularisation team [Roman Luboradzki, PhD; Aleksandra Kapuscińska-Bernatek]	<i>dissemination measures for the society:</i> open days, science festivals, popular science lectures/talks, demonstration of experiments			

The research of the ERA Chair has good prospects for commercialization but it requires more time and additional funding (already secured). However, the results achieved so far by the ERA Chair can also be and, in fact, have been disseminatated under the CREATE project. For this we have chosen the proper channels and adopted the transmitted content to target the audience communicating :

- main research results, potential use, formal aspects of research: industry, commercial sector, policymakers;
- scientific excellence, research results, the methodology used research organisations, other researchers.

The summary of the channels used to communicate with a different audience serving specific goals under the CREATE project:

DISSEMINATION CHANNELS

Target group: society, policymakers

Goal: science popularization, prmoting a profession of a researche, public policymaking

Popular science press notes

Open days and science festivals

Science popularization conferences

Electronic media & social media (*EurekAlert!, Alpha Galileo, IPC & CREATE and other webpages, YouTube, Facebook*)

Target group: other researchers, business, policymakers

Goal: sharing research results with potential users, the progress of science, public policymaking

Scientific journals – Open Access, peer-reviewed

Invited talks (e.g. to the (international) partner – research groups of co-supervisors/tech companies)

Conferences (talks & posters), seminars & training, other networking events

(e.g. IPC-wide annual meetings, events organised by IPC / collaborators, other conferences)

Networking – visits of guests incoming to IPC labs (e.g. accompanying their lectures)

Inclusion of the authority representatives into the advisory bodies of IPC (CREATE Advisory Board)

Electronic media & social media (EurekAlert!, Alpha Galileo, PPP, IPC & CREATE webpages, YouTube, FB)

EXPLOITATION CHANNELS

Target group: business, policymakers

Goal: bridging researchers & business, the use of results for commercial purposes & in public policymaking

Press articles - professional journals

IPR: patenting, protection rights to utility designs, copyrights (e.g. "IPC for the companies" initiative)

Joint research projects with collaborators

Business meetings (e.g. accompanying lectures delivered by business representatives)

3. Disseminiation measures

In this section we specify results of our efforts to inform the target groups about the CREATE project and its deliverables.

3.1. Scientific publications (all open access)

Publ	Publications of the ERA Chair's team members					
No.	Title	Authors	Periodical or the series	DOI		
1.	"Twenty-five years of optical coherence tomography: the paradigm shift in sensitivity and speed provided by Fourier domain OCT"	Johannes F. de Boer, Rainer Leitgeb and Maciej Wojtkowski	BIOMEDICAL OPTICS EXPRESS 2017 Vol. 8, No. 7 1 Jul 3248-3280	https://doi.org/10.1364/BOE.8.003248		
2	"Classification of biological micro- objects using optical coherence tomography: in silico study"	Paweł Ossowski, Maciej Wojtkowski and Peter Rt Munro	BIOMEDICAL OPTICS EXPRESS 2017 Vol. 8, No. 8 1 Aug 3606-3626	<u>https://doi.org/10.1364/BOE.8.003606</u>		
3	<i>"Optical coherence microscopy as a novel, non-invasive method for the 4D live imaging of early mammalian embryos"</i>	Karol Karnowski, Anna Ajduk, Bartosz Wieloch, Szymon Tamborski, Krzysztof Krawiec, Maciej Wojtkowski & Maciej Szkulmowski	SCIENTIFIC REPORTS 7: 4165 2017	https://doi.org/10.1038/s41598-017-04220-8		
4	<i>"Visual acuity in two-photon infrared vision"</i>	Pablo Artal, Silvestre Manzanera, Katarzyna Komar, Adrian Gambin- Regadera,, Maciej Wojtkowski	Optica 2017 4 (12) 1488-1491	https://doi.org/10.1364/OPTICA.4.001488		
5	<i>"Assessment of the influence of viscoelasticity of cornea in animal ex vivo model using air-puff optical coherence tomography and corneal hysteresis"</i>	Ewa Maczynska, Karol Karnowski, Krzysztof Szulzycki, Monika Malinowska, Hubert Dolezyczek, Artur Cichanski, Maciej Wojtkowski, Bartlomiej Kaluzny,	Journal of biophotonics 2019 12(2)	https://doi.org/10.1002/jbio.201800154		

		Ireneusz Grulkowski		
6	"Spatio-Temporal Optical Coherence Imaging—a new tool for in vivo microscopy"	Maciej Wojtkowski, Patrycjusz Stremplewski, Egidijus Auksorius, Dawid Borycki	Photonics Letters of Poland 2019 11 (2) 44	https://doi.org/10.4302/plp.v11i2.905
7	<i>"High-speed OCT-based ocular biometer combined with an air-puff system for determination of induced retraction-free eye dynamics"</i>	Alfonso Jiménez-villar, Ewa Mączyńska, Artur Cichański, Maciej Wojtkowski, Bartłomiej J Kałużny, Ireneusz Grulkowski	BIOMEDICAL OPTICS EXPRESS 2019 10(7) 3663-3680	https://doi.org/10.1364/BOE.10.003663
8	<i>"Spatiotemporal optical coherence (STOC) manipulation suppresses coherent cross-talk in full-field swept- source optical coherence tomography"</i>	Dawid Borycki, Michał Hamkało, Maciej Nowakowski, Maciej Szkulmowski, Maciej Wojtkowski	BIOMEDICAL OPTICS EXPRESS 2019 10(4) 2032-2054	https://doi.org/10.1364/BOE.10.002032
9	<i>"In vivo volumetric imaging by crosstalk-free full-field OCT"</i>	Patrycjusz Stremplewski, Egidijus Auksorius, Paweł Wnuk, Łukasz Kozoń, Piotr Garstecki, and Maciej Wojtkowski	Optica 2019 Vol. 6, No. 5 608	https://doi.org/10.1364/OPTICA.6.000608
10	<i>"Air-Puff-Induced Dynamics of Ocular Components Measured with Optical Biometry"</i>	Ewa Maczynska; Jagoda Rzeszewska-Zamiara; Alfonso Jimenez Villar; Maciej Wojtkowski; Bartlomiej J. Kaluzny; Ireneusz Grulkowski	Investigative Ophthalmology & Visual Science 2019 Vol.60 1979-1986	https://doi.org/10.1167/iovs.19-26681
11	"System for psychophysical measurements of two-photon vision"	Agnieszka Zielińska, Karolina Kiluk, Maciej Wojtkowski, Katarzyna Komar	Photonics Letters of Poland 2019 Vol. 11 (1) 1-3	https://doi.org/10.4302/plp.v11i1.837
12	<i>"Fast method of speckle suppression for reflection phase microscopy"</i>	Patrycjusz Stremplewski, Maciej Nowakowski, Dawid Borycki,	Photonic Letters of Poland 2018 10(4) 118	https://doi.org/10.4302/plp.v10i4.850

		Maciej Wojtkowski		
13	<i>"Enhancing microvasculature maps for Optical Coherence Tomography Angiography (OCT-A)"</i>	Mounika Rapolu, Paulina Niedźwiedziuk, Dawid Borycki, Paweł Wnuk, Maciej Wojtkowski	Photonics Letters of Poland 2018 10(3) 61-63	https://doi.org/10.4302/plp.v10i3.841
14	<i>"Impact diurnal variations of IOP on dynamic corneal hysteresis measured with air-puff swept-source OCT"</i>	Karol Marian Karnowski, Ewa Mączyńska, Maciej Nowakowski, Bartłomiej Kałużny, Ireneusz Grulkowski, Maciej Wojtkowski	Photonics Letters of Poland 2018 10 (3) 64-66	https://dx.doi.org/10.4302/plp.v10i3.848
15	"Two-photon imaging of the mammalian retina with ultrafast pulsing laser"	Grazyna Palczewska, Patrycjusz Stremplewski, Susie Suh, Nathan Alexander, David Salom, Zhiqian Dong, Daniel Ruminski, Elliot H Choi, Avery E Sears, Timothy S Kern, Maciej Wojtkowski, Krzysztof Palczewski	JCI insight 2018 3(17)	https://dx.doi.org/10.1172%2Fjci.insight.121555
16	"Crosstalk-free volumetric in vivo imaging of a human retina with Fourier-domain full-field optical coherence tomography"	Egidijus Auksorius, Dawid Borycki, and Maciej Wojtkowski	Biomedical Optics Express 2019 Vol. 10, No. 12 6390	https://doi.org/10.1364/BOE.10.006390
17	"Computational aberration correction in spatiotemporal optical coherence (STOC) imaging"	Dawid Borycki, Egidijus Auksorius, Piotr Wegrzyn, and Maciej Wojtkowski	Optics Letters 2020 Vol. 45, Issue 6 1293-1296	https://doi.org/10.1364/OL.384796
18	<i>"Light-efficient beamsplitter for Fourier-domain full-field optical coherence tomography"</i>	Egidijus Auksorius	Optics Letters 2020 Vol. 45, Issue 5 1240-1243	https://doi.org/10.1364/OL.383823

19	"Two-photon microperimetry: sensitivity of human photoreceptors to infrared light"	Daniel Ruminski, Grazyna Palczewska, Maciej Nowakowski, Agnieszka Zielińska, Vladimir J. Kefalov, Katarzyna Komar, Krzysztof Palczewski, and Maciej Wojtkowski	Biomedical Optics Express 2019 Vol. 10, Issue 9 4551-4567	https://doi.org/10.1364/BOE.10.004551
20	<i>"In vivo imaging of the human cornea with high-speed and high-resolution Fourier-domain full-field optical coherence tomography"</i>	Egidijus Auksorius, Dawid Borycki, Patrycjusz Stremplewski, Kamil Liżewski, Slawomir Tomczewski, Paulina Niedźwiedziuk, Bartosz L. Sikorski, and Maciej Wojtkowski	Biomedical Optics Express 2020 Vol. 11, No.5 2849-2865	https://doi.org/10.1364/BOE.393801
21	<i>"Keratoconus Detection Based on a Single Scheimpflug Image"</i>	Alejandra Consejo; Jędrzej Solarski; Karol Karnowski; Jos J Rozema; Maciej Wojtkowski; D. Robert Iskander	Translational Vision Science & Technology 2020 June Vol.9 36	https://doi.org/10.1167/tvst.9.7.36
22	<i>"Frequency-doubled femtosecond Er- doped fiber laser for two-photon excited fluorescence imaging"</i>	Dorota Stachowiak, Jakub Bogusławski, Aleksander Głuszek, Zbigniew Łaszczych, Maciej Wojtkowski, and Grzegorz Soboń	Biomedical Optics Express 2020 Vol. 11, Issue 8 4431-4442	https://doi.org/10.1364/BOE.396878
23	<i>"Longitudinal in-vivo OCM imaging of glioblastoma development in the mouse brain"</i>	Hubert Dolezyczek, Mounika Rapolu, Paulina Niedzwiedziuk, Karol Karnowski, Dawid Borycki, Joanna Dzwonek, Grzegorz Wilczynski, Monika Malinowska, and Maciej Wojtkowski	Biomedical Optics Express 2020 Vol. 11, Issue 9 5003-5016	https://doi.org/10.1364/BOE.400723
24	<i>"Influence of tissue fixation on depth- resolved birefringence of oral cavity tissue samples"</i>	Karol Karnowski, Qingyun Li, Anima Poudyal, Martin Villiger, Camile S. Farah, David D.	Journal of Biomedical Optics 2020 25(9), 096003	https://doi.org/10.1117/1.JBO.25.9.096003

		Sampson		
25	<i>"High-Throughput Monitoring of Bacterial Cell Density in Nanoliter Droplets: Label-Free Detection of Unmodified Gram-Positive and Gram- Negative Bacteria"</i>	Natalia Pacocha, Jakub Bogusławski, Michał Horka, Karol Makuch, Kamil Liżewski, Maciej Wojtkowski, and Piotr Garstecki	Anal. Chem. 2021 93, 2 843–850	https://doi.org/10.1021/acs.analchem.0c03408
26	<i>"Time-domain diffuse correlation spectroscopy (TD-DCS) for noninvasive, depth-dependent blood flow quantification in human tissue in vivo"</i>	Saeed Samaei, Piotr Sawosz, Michał Kacprzak, Żanna Pastuszak, Dawid Borycki & Adam Liebert	Scientific Reports 2021 11, Article number: 1817	https://doi.org/10.1038/s41598-021-81448-5
27	<i>"Multimode fiber enables control of spatial coherence in Fourier-domain full-field optical coherence tomography for in vivo corneal imaging"</i>	Egidijus Auksorius, Dawid Borycki, Maciej Wojtkowski	Optics Letters Vol. 46, No. 6 15 March 2021	<u>https://doi.org/10.1364/OL.417178</u>
Publi	cations co-authored by the members of syne	ergistic research teams		
No.	Title	Authors	Periodical or the series	DOI
28	<i>"Dense Layer of Bacteriophages Ordered in Alternating Electric Field and Immobilized by Surface Chemical Modification as Sensing Element for Bacteria Detection"</i>	Łukasz Richter, Krzysztof Bielec, Adam Lesniewski, Marcin Łos, Jan Paczesny and Robert Hołyst	ACS APPL. MATER. INTERFACES 2017 9 19622-19629	<u>https://doi.org/10.1021/acsami.7b03497</u> <u>Manuscript</u>
29	<i>"Scaling Equation for Viscosity of Polymer Mixtures in Solutions with Application to Diffusion of Molecular Probes"</i>	Agnieszka Wiśniewska, Krzysztof Sozański, Tomasz Kalwarczyk, Karolina Kędra-Królik, and Robert Holyst	MACROMOLECULES 2017 50 4555-4561	https://doi.org/10.1021/acs.macromol.7b00545 Manuscript

30	"Quantitative fluorescence correlation spectroscopy in three-dimensional systems under stimulated emission depletion conditions"	Krzysztof Sozanski, Evangelos Sisamakis,Xuzhu Zhang And Robert Holyst	Optica 2017 Vol. 4 No. 8, Aug	https://doi.org/10.1364/OPTICA.4.000982
31	<i>"Nanoscopic Approach to Quantification of Equilibrium and Rate Constants of Complex Formation at Single-Molecule Level"</i>	Xuzhu Zhang, Evangelos Sisamakis, Krzysztof Sozanski, and Robert Holyst	J. Phys. Chem. Lett. 2017 8 5785–5791	https://doi.org/10.1021/acs.jpclett.7b02742 Manuscript

3.2. Press releases and articles published in the popular press

No.	Title of the press note	Publisher	Date
1	The European ERA Chair grant awaits a top academic	Alpha Galileo, CREATE webpage, IPC webpage	07/05/2015
2	The best will establish a new Chair: The launch of the prestigious ERA Chair grant competition	Alpha Galileo, CREATE webpage, IPC webpage	01/10/2015
3	Inspiration needs new tools	Alpha Galileo, CREATE webpage, IPC webpage	26/10/2016
4	Winner of the top scientific prizes in Poland to create a new department at IPC PAS	PAP - Science and Scholarship in Poland, CREATE webpage	07/11/2016
5	IPC PAS starts cooperation with a leading university in China	Alpha Galileo, CREATE webpage, IPC webpage	23/03/2017
6	<u>The Polish physicist is revolutionizing global diagnostics</u> – interview with the ERA Chair holder and prof. Marcin Opallo, IPC Director	Rzeczpospolita newspaper, Polish daily, supplement "Development of research in medicine and biotechnology", p. 4	29/09/2017
7	<u>A new device under development for a more effective fight against antibiotic-</u> resistant bacteria	CREATE webpage, IPC webpage, BacterOMIC Ltd. website	19/04/2017
8	The new method of analysis in record high speed DNA assay device	CREATE webpage, IPC webpage, PAP - Science and Scholarship in Poland	12/04/2017

9	With more light, chemistry speeds up	EurekAlert!, CREATE webpage, IPC webpage, PAP - Science and Scholarship in Poland	04/05/2017
10	Small droplets are a surprise: They disappear more slowly than they 'should'	EurekAlert!, CREATE webpage, IPC webpage, PAP - Science and Scholarship in Poland	26/10/2018
11	A super resolution view of chemical reactions	EurekAlert!, CREATE webpage, IPC webpage	08/02/2018
12	<u>SERSitive: New substrates make it possible to routinely detect one molecule in a</u> <u>million</u>	EurekAlert!, CREATE webpage, IPC webpage	09/08/2018
13	<u>Photoreactors the size of a hair</u>	CREATE webpage, IPC webpage, PAP - Science and Scholarship in Poland	22/02/2018
14	ERA Chairs: where innovation is CREATED	NCP_WIDE.NET Bulletin	Spring 2019
15	NCP_WIDE.NET Bulletin about CREATE	CREATE webpage	29/05/2019
16	<u>Cells: live stream/ Komórki w działaniu</u>	CREATE webpage, IPC webpage	30/05/2019
17	The CREATE project presentation at NCP in Warsaw	CREATE webpage	17/09/2019
18	Keeping a closer eye on non-invasive microscopic bio-imaging	DG Research KE portal	18/09/2019
19	CREATE among most recent success stories on DG Research portal	CREATE webpage	19/09/2019
20	To see the Invisible	CREATE webpage, IPC webpage, EurekAlert!	29/11/2019
21	Look into the mirror	EurekAlert!, CREATE webpage, IPC webpage	31/08/2020
22	Industrialization Potential of Optics in Biomedicine conference	CREATE webpage	16/11/2020
23	CREATE project in: " <u>Good Practice Examples of H2020 Projects in Visegrad</u> <u>countries</u> " [Brochure prepared by the Czech Liaison Office for Research, Development and	webpage of the Czech Liaison Office for Research, Development and Innovation (CZELO), CREATE webpage	25/11/2020

Innovation (CZELO) in cooperation with the Brussels Office of the National Research, Development and Innovation Office of Hungary (NRDIO), the Polish Science Contact Agency of the Polish Academy of Sciences (PolSCA) and the Slovak Liaison Office for Research and Development (SLORD)]

3.3. Patent applications

No.	Patent title	Patent application no./ Date of application	Authors	Research group*	Patent office receiving application / links to webpages
Pate	nts of the ERA Chair's team members				
1	Apparatus for parallel Fourier domain optical coherence tomography imaging and imaging method using parallel Fourier domain optical coherence tomography	EP 18461611.8 / 21.11.2018 PCT/IB2019/058008 / 21.09.2019	Patrycjusz Stremplewski, Maciej Wojtkowski, Paweł Wnuk	POB	European Patent Office (EPO): <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/064308686/publication/</u> <u>EP3627093A1?q=EP18461611</u> International Patent System (PCT): <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/064308686/publication/</u> <u>WO2020058947A1?q=PCT%2FIB2019%2</u> <u>F058008</u>
Pate	nts of the members of synergistic research tear	ns			
1	A saturable absorber and a method for modelocking in a laser	P.418814 /26.09.2016 EP 17185165.2 / 07.08.2017	Yuriy Stepanenko, Jan Szczepanek, Tomasz Kardaś, Michał Nejbauer, Czesław Radzewicz	LC	Polish Patent Office (PPO): <u>https://ewyszukiwarka.pue.uprp.gov.pl/</u> <u>search/pwp-details/P.418814</u> <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/059982225/publication/</u> <u>PL235842B1?q=ap%3DPL418814%2A</u> EPO: <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/059982225/publication/</u>

					<u>EP3300191A1?q=EP17185165</u>
2	Device for passive division of droplets into emulsions and for marking emulsion, and method of passive division of droplets into emulsions and of marking emulsions	P.420615 / 22.02.2017	Witold Postek, Tomasz Kamiński, Piotr Garstecki	MCF	PPO: <u>https://ewyszukiwarka.pue.uprp.gov.pl/</u> <u>search/pwp-details/P.420615</u> <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/063229431/publication/</u> <u>PL236415B1?q=ap%3DPL420615%2A</u>
3	Microfluidic system for producing monodispersed drops	P.425543 / 15.05.2018	Adam Opalski, Karol Makuch, Yu-Kai Lai, Piotr Garstecki	MCF	PPO: <u>https://ewyszukiwarka.pue.uprp.gov.pl/</u> <u>search/pwp-details/P.425543</u> <u>https://worldwide.espacenet.com/paten</u> <u>t/search/family/068536640/publication/</u> <u>PL425543A1?q=ap%3DPL425543%2A</u>

* POB – the ERA Chair – Physical Optics & Biophotonics Group (head: Prof Maciej Wojtkowski)
 MCF – Research team of Microfluidics & Complex Fluids (head: Prof Piotr Garstecki)
 LC – Laser Centre (head: Prof Czesław Radzewicz)

3.4. Scientific talks of the ERA Chair members

No.	Title of the conference	Speaker	Tile of the talk
1	Industrialization Potential of Optics in Biomedicine 2020	Dr Egidijus Auksorius	Crosstalk-free volumetric in vivo imaging of a human retina and cornea with Fourier- domain full-field optical coherence tomography
2	Industrialization Potential of Optics in Biomedicine 2020	Dr Dawid Borycki	Sensorless adaptive optics and angiography in spatiotemporal optical coherence (STOC) retinal imaging
3	SPIE Photonics West 2020	Dr Dawid Borycki	Spatiotemporal optical coherence (STOC) imaging

4	SPIE Photonics West 2020	Dr Dawid Borycki	Time-domain diffuse correlation spectroscopy of turbid media with mixed dynamics
5	SPIE Photonics West 2020	Dr Jakub Bogusławski	Autofluorescence-based label-free monitoring of bacteria proliferation in droplet microfluidics for antibiotic susceptibility testing
6	SPIE Photonics West 2020	Dr Egidijus Auksorius	Crosstalk-free in vivo volumetric retinal imaging with Fourier-domain full-field OCT
7	SPIE Photonics West 2020	Mounika Rapolu, M.Sc.	Effect of contrast agents and enhancement of cerebrovascular on mouse brain microvasculature studies using 800nm Gaussian and Polarization-sensitive (PS) OCT system
8	IONS Conference on Optics, Atoms and Laser Application 2019	Dr Piotr Węgrzyn	Spatiotemporal Optical Coherence Manipulation (STOC) – a new tool for microscopy
9	OSA Frontiers in Optics 2019	Dr Piotr Węgrzyn	Shedding Light Onto Two Spatiotemporal Optical Coherence Manipulation (STOC) Implementations
10	The Annual Conference of the IEEE Photonics Society 2019	Dr Dawid Borycki	Spatiotemporal optical coherence (STOC) manipulation improved imaging with full-field swept-source OCT
11	OPTO2019	Dr Piotr Węgrzyn	Spatial Coherence. To destroy or not to destroy that is the questions
12	SPIE/COS Photonics Asia 2019	Mounika Rapolu, M.Sc.	Longitudinal growth and progression studies of in-vivo mouse brain Glioblastoma (GBM) tumor microvasculature using OCT
13	XI International Workshop on EPR in Biology and Medicine 2019	Professor Maciej Wojtkowski	In vivo eye imaging. To see the morphology and the function
14	45. Congress of Polish Physicists	Professor Maciej Wojtkowski	Two photons in the eye
15	Be-Optical Final conference 2019	Dr Piotr Węgrzyn	Two implementations of Spatiotemporal Optical Coherence Manipulation (STOC)
16	Be-Optical Final conference 2019	Mounika Rapolu, M.Sc.	In-vivo longitudinal imaging of glioblastoma (GBM) tumor in mouse brain microvasculature using 800nm OCT system
17	77 th Annual PIASA Meeting 2019	Professor Maciej	2 Photons in Human Eye

		Wojtkowski	
18	XVII Scientific and Training Conference of the Polish Society of Pediatric Nephrology 2019	Professor Maciej Wojtkowski	Non-invasive vital imaging in biology and medicine
19	ECBO 2019 - European Conferences on Biomedical Optics	Professor Maciej Wojtkowski	Optical coherence imaging: New methods and computational developments
20	ECBO 2019 - European Conferences on Biomedical Optics	Mounika Rapolu, M.Sc.	Glioblastoma (GBM) tumor of mouse brain microvasculature studies using OCT and enhancement of cerebrovascular with contrast agents using 800nm and 1300nm OCT system
21	ECBO 2019 - European Conferences on Biomedical Optics	Marcin Marzejon	Solid state vs picosecond lasers applied to two-photon vision tests
22	ECBO 2019 - European Conferences on Biomedical Optics	Dr Dawid Borycki	Spatiotemporal optical coherence tomography suppresses coherent cross-talk noise and low-order geometrical aberrations in full-field swept-source optical coherence tomography
23	ECBO 2019 - European Conferences on Biomedical Optics	Dr Egidijus Auksorius	Towards improving imaging depth and speed in full-field optical coherence tomography
24	OSA Biophotonics Congress 2019	Dr Egidijus Auksorius	Speckle-free and cross-talk-free imaging in Fourier domain fullfield optical coherence tomography" (Patrycjusz Stremplewski, Egidijus Auksorius, Pawel Wnuk, Lukasz Kozon, Piotr Garstecki, Maciej Wojtkowski)
25	OSA Biophotonics Congress 2019	Paulina Niedzwiedziuk, M.Sc.	Speckle decorrelation for cell's dynamics (Paulina Niedzwiedziuk, Maciej Wojtkowski, Karol Karnowski)
26	SPIE Photonics West 2019	Professor Maciej Wojtkowski	Spatiotemporal optical coherence (STOC) manipulation suppresses coherent cross-talk in full-field swept-source optical coherence tomography
27	SPIE Photonics West 2019	Professor Maciej Wojtkowski	Full field optical coherence tomography with multiple pinholes

28	SPIE Photonics West 2019	Dr Dawid Borycki	Spatiotemporal optical coherence (STOC) manipulation suppresses coherent cross-talk in full-field swept-source optical coherence tomography
29	SPIE Photonics West 2019	Dr Egidijus Auksorius	Full field optical coherence tomography with multiple pinholes
30	SPIE Photonics West 2019	Dr Karol Karnowski	Imaging of anterior segment pathologies: challenges and future opportunities
31	The 159. seminar of the International Center of Biocybernetics: Optics in Neuromonitoring 2018	Dr Dawid Borycki	Monitoring time-of-flight-resolved temporal dynamics of optical field using interferometric near-infrared spectroscopy (iNIRS)
32	EOSAM 2018	Paulina Niedzwiedziuk, M.Sc.	OCM based analysis of cytoplasm dynamics in cancer cells
33	EOSAM 2018	Mounika Rapolu, M.Sc.	Imaging of cortical vessels of mouse brain: Bessel vs Gaussian beams
34	EOSAM 2018	Michał Hamkało, M.Sc.	Structural and functional cardiac Megahertz OCT imaging at up to 100 volumes/s
35	EOSAM 2018	Dr Dawid Borycki	Spatiotemporal optical coherence (STOC) manipulation suppresses coherent cross-talk in full-field swept-source optical coherence tomography
36	The 7. International Conference on Speckle Metrology – SPECKLE2018	Professor Maciej Wojtkowski	Spatio-Temporal Optical Coherence techniques for in vivo tissue imaging
37	SPIE Photonics West 2018	Michał Hamkało, M.Sc.	Long-depth-range MHz OCT for structural and functional cardiac imaging at up to 100 volumes/s
38	Biophotonics Congress Biomedical Optics 2018	Dr Dawid Borycki	Correlation gating quantifies optical properties of dynamic media in transmission mode
39	Code Europe Spring 2018	Dr Dawid Borycki	Programming for Windows Mixed Reality
40	Code Europe Spring 2018	Dr Dawid Borycki	Azure Machine Learning Time Series Analysis for Anomaly Detection
41	The 44 th Congress of Polish Physical	Professor Maciej	Journey from organs to cells: In vivo imaging by spatio-temporal optical coherence

	Society 2017	Wojtkowski	techniques
42	Polish Optical Conference 2017	Professor Maciej Wojtkowski	Time-frequency modulation of light phases in imaging
43	CODE EUROPE 2017	Dr Dawid Borycki	Implementing Internet of Things (IoT) solutions with Azure
44	CODE EUROPE 2017	Dr Dawid Borycki	Human emotion recognition and image content interpretation with Microsoft Cognitive Services
45	code::dive 2016	Dr Dawid Borycki	Internet of Things. Building machine vision system supported by artificial intelligence
46	XXII Biennial Meeting of the International Society for Eye Research, ISER 2016	Professor Maciej Wojtkowski	New advances in ocular imaging, topic: OCT elastography and IOP

3.5. Scientific posters of the ERA Chair members

No.	Title of the conference	Speaker	Tile of the talk			
1	SPIE Photonics West 2020	Dr Piotr Węgrzyn	Spatiotemporal optical coherence (STOC) manipulation achieves better performance than angular compounding in full-field swept-source optical coherence tomography			
2	Imaging in Wave Physics : Multi-Wave and Large Sensor Networks 2019	Dr Piotr Węgrzyn	Suppressing Spatial Coherence with Spatiotemporal Optical Coherence Manipulation (STOC)			
3	2019 Conference on Lasers and Electro- Optics Europe	Dr Jakub Boguslawski	Label-free optical readout of bacteria density in nanoliter droplets			
4	The Siegman International School on Lasers	Dr Piotr Węgrzyn	Spatial Coherence. To destroy or not to destroy – that is the question			
5	The Siegman International School on Lasers	Mounika Rapolu, M.Sc.	Contrast enhancement in optical coherence angiography for brain imaging			
6	ESULaB 2019	Dr Łukasz Kormaszewski	Two-photon in vivo imaging of retina			

7	Fractal Geometry and Stochastics 6 (FGS 6) 2018	Mounika Rapolu, M.Sc.	Multifractal, Fractal and Lacunarity analysis of the three-dimensional cerebral vasculature of the mouse brain in vivo
8	OSA Biophotonics Congress 2019	Dr Julia I. Sudyka	Application of single-pixel camera for imaging in turbid media" (Julia I. Sudyka, Michal Hamkalo, Maciej Wojtkowski)
9	OSA Biophotonics Congress 2019	Dr Jakub Boguslawski	Optofluidic Platform for Bacteria Screening in Nanoliter Droplets (Jakub Boguslawski , Natalia Pacocha , Michal Horka ,Maciej Wojtkowski, Piotr Garstecki)
10	SPIE Photonics West 2019	Professor Maciej Wojtkowski, Dr Karol Karnowski	Speckle free full field swept source OCT
11	SPIE Photonics West 2019	Dr Karol Karnowski (co-author)	Versatile, all-fiber, side viewing imaging probe for applications in catheter-based optical coherence tomography
12	SPIE Photonics West 2019	Dr Karol Karnowski (co-author)	Local optic axis mapping for airway smooth muscle assessment in catheter-based polarization-sensitive optical coherence tomography
13	Laser Technology Symposium 2018	Dr Jakub Boguslawski	Active mode-locking using graphene modulators
14	The 7. International Conference on Speckle Metrology – SPECKLE2018	Michał Hamkało, M.Sc.	Imaging through turbid media with speckle illumination optical coherence tomography
15	The 7. International Conference on Speckle Metrology – SPECKLE2018	Mounika Rapolu, M.Sc.	Enhanced Image processing of OCT data for Global Ischemia and Glioblastoma
16	SPIE Photonics West 2018	Dr Dawid Borycki	Removing image distortions by spatio-temporal optical coherence (STOC) manipulation
17	SPIE Photonics West 2018	Dr Yuriy Stepanenko	All-fiber ultrafast oscillator mode-locked using nonlinear polarization evolution in polarization maintaining fibers (Yuriy Stepanenko, Jan Szczepanek, Tomasz Kardaś, Michal Nejbauer, Czesław Radzewicz)
18	EGAS 50 2018	Dr Julia I. Sudyka	Optically induced Bloch-Siegert shift in magneto-optical resonances
19	European Conferences on Biomedical	Dr Dawid Borycki	Dawid Borycki gave a talk entitled Removing image distortions by spatio-temporal optical

	Optics ECBO 2017		coherence manipulation. Shortened abstract of this talk was: light propagating in turbid medium is randomly disrupted, causing image distortions. This issue was tackled by the sample-dependent wavefront shaping. Here, he present a technique of light modulation, in which image distortions are suppressed universally.
20	European Conferences on Biomedical Optics ECBO 2017	Mounika Rapolu, M.Sc.	Bessel Beam OCM for analysis of Global Ischemia in Mouse Brain focusing mainly by presenting the in-vivo imaging of the global mouse brain ischemia using Bessel beam optical coherence microscopy
21	European Conferences on Biomedical Optics ECBO 2017	Dr Patrycjusz Stremplewski	Noninvasive two-photon imaging of murine retina in vivo (collaboration with Department of Pharmacology, Case Western Reserve University, Cleveland)
22	Berlin Brain 2017	Dr Dawid Borycki	Interferometric near-infrared spectroscopy (iNIRS) quantifies brain absorption, scattering, and blood flow index in vivo

3.6. Events (co-)organised by IPC

No.	Type of event	Title	Date/period	Place	Type of audience	Estimated size of audience & countries addressed
1	Virtual conference	Industrialization Potential of Optics in Biomedicine [informational release; video]	7-8/10/2020	IPC	researchers, business representatives	200; all over the world
2	Symposium	<u>Physical Chemistry in biological systems – breaking</u> <u>barriers</u> [this event was a part of the 10th Anniversary Symposium of the Photonics Society of Poland, combined with the International Day of Light 2018]	18/05/2018	IPC	researchers	100; Poland
3	Symposium	Physical Chemistry in Biological Systems – towards comprehensive research on eye and vision	17-18/06/2019	IPC	researchers	70; Poland
4	Symposium	Physical Chemistry in biological systems - breaking	24/02/2021	IPC	researchers	100;

		barriers: Workshop on Advances in eye research				all over the world
5	CREATE lectures series	 Exploring Hydrated Electrons in Non-Conventional and Conventional Ways: From Alkali Metal Explosions to Non-Explosive Ways Seminar on the successful reform of Czech research institutes followed by discussion on desired changes in Polish science: People first, machines and buildings later Prof. Pavel Jungwirth 	20-21/10/2016	IPC	researchers	40; Poland
6	CREATE lectures series	Full-field optical coherence tomography: from micro to macro imaging Dr. Egidijus Auksorius	20/10/2017	IPC	researchers	60; Poland
7	CREATE lectures series	The Surging Tide of Scientific Research in China Prof. Luyuan Li	20/06/2017	IPC	researchers	40; Poland
8	CREATE lectures series	From fire ants to graphene: some considerations on water-hydrophobic interfaces Prof. Carlos Drummond	10/10/2017	IPC	researchers	70; Poland
9	CREATE lectures series	The physics of drug resistance Dr. Bartłomiej Wacław	19/10/2017	IPC	researchers	40; Poland
10	CREATE lectures series	Building a Synthetic Cell Prof. Wilhelm Huck*	20/12/2017	IPC	researchers	100; Poland
11	CREATE lectures series	 Inorganic Interfaces, Organic Materials and Energy Converting Enzymes: The Power of Computational Chemistry The Art of Leading a Research Group Prof. dr. Jochen Blumberger* 	22/02/2018	IPC	researchers	60; Poland
12	CREATE lectures series	Deep imaging with time-reversed light Prof.Benjamin Judkewitz	18/05/2018	IPC	researchers	100; Poland
13	CREATE lectures series	Optics for better vision Prof. Pablo Artal*	22/05/2018	IPC	researchers	55; Poland
14	CREATE lectures series	Chemistry of Vision Prof. Krzysztof Palczewski	19/06/2018	IPC	researchers	50; Poland

15	CREATE lectures series	Biologists, Chemists, and Physicists crosstalk over the skin Prof. Joanna Cichy	28/06/2018	IPC	researchers	50; Poland
16	CREATE lectures series	 Fundamental Limits of Mobile Phone Cameras Should I stay, or should I go Prof. Chris Dainty 	1-2/10/2018	IPC	researchers	60/40; Poland
17	CREATE lectures series	Bioprinting In The Life Sciences And Beyond Prof. Gabor Forgacs	7/05/2019	IPC	researchers	60; Poland
18	CREATE lectures series	Tunnelling Processes in Chemistry Simulated with Instanton Theory Prof. Dr. Johannes Kästner*	7/11/2019	IPC	researchers	35; Poland
19	CREATE lectures series	Unusual approaches for symmetry breaking in chemical systems Prof. Alexander Kuhn*	13/11/2019	IPC	researchers	40; Poland
20	CREATE lectures series	On discovery in catalysis Prof. Frank Glorius*	13/02/2020	IPC	researchers	180; Poland
21	CREATE lectures series	Solar-driven Synthesis of Fuels and Chemicals from Biomass and Plastic Waste Prof. Erwin Reisner*	26/11/2020	IPC	researchers	135; Poland
22	CREATE lectures series	Have you ever pulled on a molecule? - Chemical Reactivity by Interactive Quantum Mechanics Prof. Markus Reiher	10/12/2020	IPC	researchers	110; Poland
23	Innovation source lectures series	The Israeli start-ups' eco-system - How to commercialize technologies from the Academia? Sarai Kemp	26/10/2016	IPC	researchers	45; Poland
24	Innovation source lectures series	VSParticle: spin-off company of the Technical University Delft – Production of nanoparticle Vincent Laban	28/03/ 2017	IPC	researchers	60; Poland
25	Innovation source lectures series	Academic scientists and Pharmaceutical R&D: what can they offer each other? Radosław Kwapiszewski	6/06/2018	IPC	researchers	60; Poland
26	Innovation source	How to start, and keep (!) your own business	10/05/2018	IPC	researchers	70; Poland

	lectures series	Justyna Garstecka				
27	Innovation source lectures series	How to convert EU-funded research in MEMS and MOEMS technologies into a success story with market- oriented exploitation? Prof. Christophe Gorecki	19/11/2018	IPC	researchers	60; Poland
28	Innovation source lectures series	How to deal with the investment of a Venture Capital fund Rafał Bator	31/05/2019	IPC	researchers	60; Poland
29	Innovation source lectures series	From labs to hospitals, a long and complex journey Prof. Tomasz Ciach	11/06/2019	IPC	researchers	60; Poland
30	Innovation source lectures series	From phenomenological investigations towards industrial applications. Production of CCV filters for automotive industry Prof. Leon Gradoń	19/06/2019	IPC	researchers	30; Poland
31	Innovation source lectures series	Academic exploring industry - a case study Prof. Jakub Gołąb	25/06/2019	IPC	researchers	50; Poland
32 - 33	Innovation source lectures series	How to become an entrepreneur? Sarai Kemp, dr. Nitza Kardish	28/10/2019	IPC	researchers	60; Poland
34	Innovation source lectures series	From Smartphones to Diagnostics Prof. Hywel Morgan	5/11/2019	IPC	researchers	50; Poland
35	Innovation source lectures series	Microfluidic chips to study cell to cell communication and translational research towards precision medicine Prof. Yoon-Kyoung Cho	31/10/2019	IPC	researchers	50; Poland
36	Innovation source lectures series	The development and commercialization of endoscopic OCT technology Brett Bouma	7/10/2020	IPC	researchers	200; all over the world
37	Innovation source lectures series	Romancing the Startup: Starting the Entrepreneurial Journey on the Right Foot Eric Buckland	7/10/2020	IPC	researchers	200; all over the world
38	Innovation source	Label-free Optical Sensing of Cell State During	7/10/2020	IPC	researchers	200;

	lectures series	Biomanufacturing Dr Melissa Skala				all over the world
39	lecture course	"Fundamentals of Biomedical Imaging - lecture course" Dr Alejandra Consejo (POB group member)	12/2019- 01/2020	IPC	researchers (PhD students)	13; Poland
40	workshop	"Improvisation for scientists - communication skills course" Dr Alejandra Consejo (POB group member)	2018/219 019/2020	IPC	researchers (PhD students)	23; Poland
41	specialised lecture course	"Basics of optical imaging" Professor Maciej Wojtkowski (ERA Chair holder)	21/02- 26/06/2020	IPC	researchers (PhD students)	10; Poland
42	lesson	"New technologies in imaging of living tissues and cells" Professor Maciej Wojtkowski (ERA Chair holder)	23/09/2020	IPC	society	60; Poland
43	lesson	"Why a biologist needs physicochemistry, or how physicists and chemists look at life" Dr Roman Luboradzki	21/09/2020	IPC	society	60; Poland
44	lesson	"How physicist and chemist look at life - what for a biologist needs physicochemistry?" Dr Roman Luboradzki	09/2019 09/2018 09/2017	IPC	society	40-120 (each); Poland
45	lesson	"What is modern chemistry?" Dr Roman Luboradzki	23/03/2018	school ¹	society	70; Poland
46	presentation	"IPC PAS and framework programmes of the European Union" Agnieszka Tadrzak M.Sc.	6/12/2018	IPC	researchers – NCPs representatives	20; Poland
47	presentation	"ERA Chairs: CREATE" Professor Robert Hołyst	4/04/2019	WUT ²	researchers, authorities	50; Poland
48	presentation	"Z perspektywy ERA Chair Holdera: projekt CREATE" Professor Maciej Wojtkowski (ERA Chair holder)	4/09/2018	IFTR ³	researchers, authorities	50; Poland

¹ Saint Thomas Aquinas Primary School, Junior High and High School in Józefów

² Warsaw University of Technology

³ Institute of Fundamental Technological Research, Polish Academy of Sciences

49	presentation	"CREATE project – experience from preparation and	21/11/2017	RCL ⁴	researchers,	70; Lithuania
		implementation of the ERA Chairs grant"			authorities	
		Dr Patrycja Nitoń				

3.7. Videos & electronic content

No.	Type of dissemination measure & location (link)	Target group	Type of content
1	project webpage	researchers, business representatives, authorities, society	all information about the projects, e.g. deliverables, press notes, reports from various types of events, lists of publications, competition announcements
2	IPC webpage	researchers, business representatives, authorities, society	most important information about the project, major activities, vacancies, public tenders
3	POB webpage	researchers, business representatives, authorities, society	most important information about the project
4	<u>i-POB conference</u> webpage	researchers, business representatives, authorities, society	details of the Industrialization Potential of Optics in Biomedicine Conference
5	EURAXESS webpage	researchers	vacancies
6	video	researchers, business representatives, authorities, society	reportage from the Industrialization Potential of Optics in Biomedicine Conference
7	<u>full conference</u> <u>recording</u>	researchers, business representatives, authorities	full recording from the Industrialization Potential of Optics in Biomedicine Conference
8	<u>video</u>	researchers, business representatives, authorities, society	ERA Chair promotional film
9	<u>video</u>	researchers	conference speech – "Internet of Things. Building machine vision system supported by

⁴ Research Council of Lithuania and Lithuanian RDI Liaison Office LINO

			artificial intelligence"
10	<u>video</u>	researchers	conference speech – "The 44. Congress of Polish Physical Society"
11	<u>video</u>	researchers	conference speech – "Implementing Internet of Things solutions with Azure"
12	<u>video</u>	researchers	conference speech – "Human emotion recognition and image content interpretation with the Microsoft Cognitive Services"
	<u>video</u>	society	reportage from The 22. Science Picnic
13	<u>posts, films on</u> <u>Facebook</u>	researchers, business representatives, authorities, society	information on press notes, major events linked with CREATE, films
13	electronic flyers	researchers, business representatives	electronic flyer inviting the Industrialization Potential of Optics in Biomedicine Conference
14	electronic posters	researchers	electronic poster inviting for a symposium, poster promoting an OPEN CALL - On-line training courses under the CREATE project, poster promoting an OPEN COMPETITION - Lab visit under the CREATE project, posters promoting Innovation source & CREATE lecture series

3.8. Others

No.	Type of dissemination measure	Target group	Type of content
1	an interview	researchers, business representatives, authorities, society	Interview with professor Maciej Wojtkowski – the 1 st Programme of the Polish Radio (20 Febr., 2019)
2	2 roll-ups	researchers, business representatives, authorities, society	1 roll-up promoting the CREATE project and 1 roll-up promoting the Industrialization Potential of Optics in Biomedicine Conference (used also as a background during the conference)
3	posters	researchers, society	posters promoting the Industrialization Potential of Optics in Biomedicine Conference, 2 for scientific symposia (+1 electronic poster), 2 at IPC gate promoting the CREATE project and the new ERA Chair promotional film, 2 poster promoting "Fundamentals of Biomedical Imaging -

	lecture course" and "Improvisation for scientists - communication skills course", posters
	promoting Innovation source & CREATE lecture series, posters at popular science conferences