

UNIVERSITATEA DE STAT DIN MOLDOVA

(Denumirea organizației)

APROB:
Rector
ȘAROV Igor, dr. conf. univ.

(semnătura)
„_____” _____ 2023

PROCES-VERBAL

nr.1 din

2023

de recepție finală/punere în funcțiune a rezultatelor obținute în cadrul proiectului de cercetare și inovare cu cifrul 20.80009.5007.03

În baza ordinului nr. 234 c din „12” septembrie 2023, comisia în componența președintelui comisiei

<u>Prorector pentru activitate științifică</u> (funcția)	<u>Stepanov Georgeta</u> (numele, prenumele)
și membrilor comisiei	
<u>Șef Departament Cercetare și Inovare</u> (funcția)	<u>Prisacaru Veronica</u> (numele, prenumele)
<u>Director Institutul de Fizică Aplicată</u> (funcția)	<u>Șikimaka Olga</u> (numele, prenumele)
<u>Conducător Proiect</u> (funcția)	<u>Arușanov Ernest</u> (numele, prenumele)
<u>Contabil șef adjunct</u> (funcția)	<u>Toderaș Angela</u> (numele, prenumele)

a întocmit prezentul proces-verbal de recepție finală/punere în funcțiune a următorului obiect de active materiale și/sau nemateriale (grupe de obiecte):

Nr. d/o	Denumirea obiectului de active materiale și/sau nemateriale (grupe de obiecte)	Numărul de inventar	Data de de recepție finală /punere în funcțiune	Nr. unit.	Valoarea de intrare, mii lei	Durata de funcționare utilă, ani	Suma uzurii anuale, lei
1	2	3	4		5	6	7
1. 2020	¹ Articole în reviste științifice	000992		17	2135.7		
2. 2020	² Articole în culegeri științifice	000993		3	200.0		
3. 2020	³ Rapoarte la foruri științifice	000994		4	150.0		
	TOTAL 2020				2485.7		
4. 2021	⁴ Articole în reviste științifice	000995		12	2113.9		
5. 2021	⁵ Teze în culegeri științifice	000996		5	300.0		

6. 2021	⁶ Rapoarte la foruri științifice	000997		6	200.0		
	TOTAL 2021				2613.9		
7. 2022	⁷ Articole în reviste științifice	000998		4	1883.8		
8. 2022	⁸ Articole în culegeri științifice	000999		1	200.0		
9. 2022	⁹ Teze în culegeri științifice	001000		7	800.0		
10. 2022	¹⁰ Rapoarte la foruri științifice	001001		4	150.0		
	TOTAL 2022				3033.8		
11. 2023	¹¹ Articole în reviste științifice	001002		11	3252.0		
	TOTAL 2023				3252.0		

Codul de clasificare a obiectului de active conform Catalogului mijloacelor fixe și activelor nemateriale	Data fabricării (elaborării)	Numărul pașaportului tehnic, altui document (se va specifica)
8	9	10

Lista rezultatelor:

2020

¹Articole în reviste științifice

- Bodnar, I.V.; Victorov, I.A.; Karosa, A.G.; **Arushanov, E.K.**; **Levcenko, S.**; Polarized infrared reflectivity of $\text{Cu}_2\text{CdSnS}_4$ single crystals. *Appl Phys Lett.* 2020, **117(18)**, 182102-1—182102-4. Doi: [10.1063/5.0024482](https://doi.org/10.1063/5.0024482) (IF: 3,597).
- Levcenko, S.**; **Hajdeu-Chicarosh, E.**; Serna, R.; **Guc, M.**; Victorov, I.A.; **Nateprov, A.**; Bodnar, I.V.; Caballero, R.; Merino, J.M.; **Arushanov, E.**; León, M.; Spectroscopic ellipsometry study of $\text{Cu}_2\text{ZnSn}(\text{S}_x\text{Se}_{1-x})_4$ bulk polycrystals. *J. Alloys Compd.* 2020, **843**, 156013. Doi: [10.1016/j.jallcom.2020.156013](https://doi.org/10.1016/j.jallcom.2020.156013) (IF: 4,175).
- Shoydin, S.A.; **Meshalkin, A.Yu.**; Kovalev, M.S.; Formfactor of a hologram on a chalcogenide glassy semiconductor and azopolymer. *Opt Mater Express.* 2020, **10(8)**, 1819—1825. Doi [10.1364/OME.399017](https://doi.org/10.1364/OME.399017) (IF: 2,673).
- Morari, V.; Pantazi, A.Gh.; **Curmei, N.**; Postolache, V.; Rusu, E.; Enachescu, M.; Tiginyanu, I.; Ursaki, V.; Band tail state related photoluminescence and photoresponse of ZnMgO solid solution nanostructured films. *Beilstein J Nanotech.* 2020, **11**, 899—910. Doi: [10.3762/bjnano.11.75](https://doi.org/10.3762/bjnano.11.75) (IF: 2,612).
- Lähderanta, E.; Lebedev, A.A.; Shakhov, M.A.; Stamov, V.N.; **Lisunov, K.G.**; Lebedev, S.P. Low-temperature quantum magnetotransport of graphene on SiC (0 0 0 1) in pulsed magnetic fields up to 30 T. *J Phys-Condens Mat.* 2020, **32(11)**, 115704-1—115704-9. Doi: [10.1088/1361-648X/ab5bb6](https://doi.org/10.1088/1361-648X/ab5bb6) (IF: 2,711).
- Goryunov, Yu.V.; **Nateprov, A.N.** Effect of the Landau Levels on the Super Hyperfine Structure of ESR Spectra of Fe^{3+} Precipitates in Dirac 3D Semimetal Cd_3As_2 . *Phys Solid State.* 2020, **62(1)**, 100—105. Doi: [10.1134/S1063783420010114](https://doi.org/10.1134/S1063783420010114) (IF: 0,95).
- Sergeev, S.A.; Iovu, M.S.; **Meshalkin, A.Yu.** Superimposed equally oriented diffraction gratings formed in As_2S_3 films. *Chalcogenide Lett.* 2020, **17(1)**, 25—31 (IF: 0,977).
- Schorr, S.; Gurieva, G.; **Guc, M.**; Dimitrievska, M.; Pérez-Rodríguez, A.; Izquierdo-Roca, V.; Schnohr, C.S.; Kim, J.; Jo, W.; Merino, J.M.; Point defects, compositional fluctuations, and secondary phases in non-stoichiometric kesterites. *J Phys Energy.* 2020, **2(1)**, 012002-1-012002-40. Doi: [10.1088/2515-](https://doi.org/10.1088/2515-)

- [7655/ab4a25](#).
9. Ruiz-Perona, A.; Sánchez, Y.; **Guc, M.**; Khelifi, S.; Kodalle, T.; Placidi, M.; Manuel Merino, J.; León, M.; Caballero R.; [Effect of Na and the back contact on Cu₂Zn\(Sn, Ge\)Se₄ thin-film solar cells: Towards semi-transparent solar cells](#). *Sol Energy*, 2020, **206**, 555 – 563. [Doi: 10.1016/j.solener.2020.06.044](#) (IF: 4,608).
 10. Ruiz-Perona, A.; Sánchez, Y.; **Guc, M.**; Calvo-Barrio, L.; Jawhari, T.; Merino, J.M.; León, M.; Caballero, R.; [Influence of Zn excess on compositional, structural and vibrational properties of Cu₂ZnSn_{0.5}Ge_{0.5}Se₄ thin films and their effect on solar cell efficiency](#). *Sol Energy* 2020, **199**, 864-871. [Doi: 10.1016/j.solener.2020.02.082](#) (IF: 4,608).
 11. Benhaddou, N.; Aazou, S.; Sánchez, Y.; Andrade-Arvizu, J.; Becerril-Romero, I.; **Guc, M.**; Giraldo, S.; Izquierdo-Roca, V.; Saucedo, E.; Sekkat, Z.; [Investigation on limiting factors affecting Cu₂ZnGeSe₄ efficiency: Effect of annealing conditions and surface treatment](#). *Sol Energy Mat Sol Cells*, 2020, **216**, 110701. [Doi: 10.1016/j.solmat.2020.110701](#) (IF: 6.984).
 12. Ojeda-Durán, E.; Monfil-Leyva, K.; Andrade-Arvizu, J.; Becerril-Romero, I.; Sánchez, Y.; Fonoll-Rubio, R.; **Guc, M.**; Jehl, Z.; Luna-López, J.A.; Muñoz-Zurita, A.L.; Hernández-de la Luz, J.A.D.; Izquierdo-Roca, V.; Placidi, M.; Saucedo E.; [CZTS solar cells and the possibility of increasing VOC using evaporated Al₂O₃ at the CZTS/CdS interface](#). *Sol Energy*, 2020, **198**, 696-703. [Doi: 10.1016/j.solener.2020.02.009](#) (IF: 4,608).
 13. Gurieva, G.; Többsens, D.M.; **Levcenco, S.**; Unold, T.; Schorr, S.; [Cu/Zn disorder in stoichiometric Cu₂ZnSn\(S_{1-x}Se_x\)₄ semiconductors: A complementary neutron and anomalous X-ray diffraction study](#). *J. Alloys and Compd.* 2020, **846**, 156304. [Doi: 10.1016/j.jallcom.2020.156304](#) (IF: 4,65).
 14. Handweg, M.; Mitdank, R.; **Levcenco, S.**; Schorr, S.; Fischer, S.F.; [Thermal and electrical conductivity of single crystalline kesterite Cu₂ZnSnS₄](#). *Mater. Res. Express*, 2020, **7(10)**, 105908. [Doi: 10.1088/2053-1591/abc276](#) (IF: 1,929).
 15. Gurieva, G.; Márquez, J.A.; Franz, A.; Hages, C.J.; **Levcenko, S.**; Unold, T.; Schorr, S.; [Effect of Ag incorporation on structure and optoelectronic properties of \(Ag_{1-x}Cu_x\)₂ZnSnSe₄ solid solutions](#). *Phys. Rev. Materials*, 2020, **4**, 054602. [Doi: 10.1103/PhysRevMaterials.4.054602](#) (IF: 3.337).
 16. Choubac, L.; Bär, M.; Kozina, X.; Félix, R.; Wilks, R.G.; Brammertz, G.; **Levcenko, S.**; Arzel, L.; Barreau, N.; Harel, S.; Meuris, M.; Vermang, B.; [Sn substitution by Ge: Strategies to overcome the open circuit voltage deficit of kesterite solar cells](#). *ACS Appl. Energy Mater.* 2020, **3(6)**, 5830–5839. [Doi: 10.1021/acsaem.0c00763](#).
 17. Pareek, D.; Taskesen, T.; Márquez, J.A.; Stange, H.; **Levcenco, S.**; Simsek, I.; Nowak, D.; Pfeiffelmann, T.; Chen, W.; Stroth, C.; Sayed, M.H.; Mikolajczak, U.; Parisi, J.; Unold, T.; Mainz, R.; Gütay, L.; [Reaction Pathway for Efficient Cu₂ZnSnSe₄ Solar Cells from Alloyed Cu-Sn Precursor via a Cu-Rich Selenization Stage](#). *RRL Solar*, 2020, **4(6)**, 2000124. [Doi: 10.1002/solr.202000124](#) (IF: 7,527).

²Articole în culegeri științifice

1. **Meshalkin, A.YU.**; Losmanschii, C.S.; Cazac, V.O.; Achimova, E.A.; [Podlipnov, V.V.](#); Analysis of diffraction efficiency of phase gratings in dependence of grooves number, [ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ И НАНОТЕХНОЛОГИИ \(ИТНТ-2020\)](#) Сборник трудов по материалам VI Международной конференции и молодежной школы. В 4-х томах. Под редакцией С.В. Карпеева, 143-146, 2020.
2. **Лошманский, К.**; Акимова, Е.; [Мешалкин, А.](#); Абашкин, В.; Присакар, А.; Сравнительные характеристики азополимеров: синтез, оптические и регистрирующие свойства, [ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ И НАНОТЕХНОЛОГИИ \(ИТНТ-2020\)](#) Сборник трудов по материалам VI Международной конференции и молодежной школы. В 4-х томах. Под редакцией С.В. Карпеева, 461-466, 2020.
3. **Simashkevich, A.**; Ulyashin, A.; Thogersen, A.; Shevchenko, G.; Bokshitz, Iu.; **Bruc, L.**; Caraman, M.; Dementiev, I.; Goglidze, T.; **Curmei, N.**; **Serban, D.**, Functional ITO/c-Si heterojunction in the solar radiation spectrum range of 300-1100 nm, INTERNATIONAL SEMICONDUCTOR CONFERENCE 43rd Edition, October 7 - 9, 2020, Romania, pp. 73-76, ISBN: 978-1-7281-1072-1.

³Rapoarte la foruri științifice

1. **Cazac, V.; Achimova, E.;** Katkovnik, V.; Shevkunov, I.; Egiazarian, K.; Comunicare “*Pixel-Wise Calibration of the Spatial Light Modulator*”, **FiO/LS Conference, 14-17 September, 2020.**
2. **Cazac, V.;** Comunicare “*Improved 3D imaging of phase shifting digital holographic microscope by compensation for wavefront distortion*”, VI International Conference on Information Technology and Nanotechnology, 26-29 May 2020.
3. **Meshalkin, A.Y.U.; Losmanschii, C.S.; Cazac, V.O.; Achimova, E.A.; Podlipnov, V.V.;** Comunicare “*Analysis of diffraction efficiency of phase gratings in dependence of grooves number*”, VI International Conference on Information Technology and Nanotechnology, 26-29 May 2020.
4. **Losmanschii, C.; Achimova, E.; Abaskin, V.; Meshalkin, A.;** Prisacar, A.; Comunicare “*Comparative characteristics of azopolymers: synthesis, optical and recording properties*”, VI International Conference on Information Technology and Nanotechnology, 26-29 May 2020.

2021

⁴Articole în reviste științifice

1. **Simashkevich, A.;** Shevchenko, G.; Bokshyts, Yu.; **Bruc, L.;** Caraman, M.; Dementiev, I.; Goglidze, T.; **Curmei, N.; Serban, D.** Low-Cost ITO/n-Si Solar Cells with Increased Sensitivity in UV Spectrum Range. *Surf Eng Appl Elect.* 2021, 57(3), 315—322. Doi: [10.3103/S1068375521030133](https://doi.org/10.3103/S1068375521030133).
2. **Dermenji, L.; Curmei, N.;** Gurieva, G.; **Bruc, L.** (Ag_xCu_{1-x})₂ZnSnS₄-Based Thin Film Heterojunctions: Influence of CdS Deposition Method. *Surf Eng Appl Elect.* 2022, 57(3), 323—329. Doi: [10.3103/S1068375521030054](https://doi.org/10.3103/S1068375521030054).
3. Melnikova, E.A.; Gorbach, D.V.; Rushnova, I.I.; Kabanova, O.S.; Slusarenko, S.S.; Tolstik, A.L.; **Losmanschii, C.;** **Meshalkin, A.;** **Achimova, E.** Optical Vortices Generation by Azopolymeric Relief Gratings. *Nonlinear Phenom Complex Syst.* 2021, 24(2), 104—111. Doi: [10.33581/1561-4085-2021-24-2-104-111](https://doi.org/10.33581/1561-4085-2021-24-2-104-111).
4. **Guc, M.;** Gurieva, G.; **Hajdeu-Chicarosh, E.;** Schorr, S.; **Lisunov, K.G.;** **Arushanov, E.** Conductivity mechanisms and influence of the Cu/Zn disorder on electronic properties of the powder Cu₂ZnSn(S_{1-x}Se_x)₄ solid solutions. *J Mater Research Technol.* 2021, 13, 2251—2259. Doi: [10.1016/j.jmrt.2021.06.003](https://doi.org/10.1016/j.jmrt.2021.06.003) (IF: 5,289).
5. Porfirev, A.; Khonina, S.; **Meshalkin, A.;** Ivliev, N.; **Achimova, E.;** **Abashkin, V.;** **Prisacar, A.;** Podlipnov, V. Two-step maskless fabrication of compound fork-shaped gratings in nanomultilayer structures based on chalcogenide glasses. *Opt Lett.* 2021, 46(13), 3037—3040. Doi: [10.1364/OL.427335](https://doi.org/10.1364/OL.427335) (IF: 3,714).
6. Sergeev, S.A.; **Meshalkin, A.Y.;** Iovu, M.S. Diffraction Structures Formed by Two Crossed Superimposed Diffraction Gratings. *Surf Eng Appl Elect.* 2021, 57(2), 207—216. Doi: [10.3103/S1068375521020095](https://doi.org/10.3103/S1068375521020095).
7. Шевченко, Г.П.; Бокшиц, Ю.В.; Ковель, Е.А.; Шинкевич, Н.В.; Мазаник, А.В.; **Шербан, Д.А.;** **Курмей, Н.Н.;** **Брук, Л.И.;** Першукевич, П.П. Переизлучающие пленки состава оксид – йодид меди(I) для кремниевых солнечных элементов. *Журнал Белорусского государственного университета. Химия.* 2021, 1, 50—57. Doi: [10.33581/2520-257X-2021-1-50-57](https://doi.org/10.33581/2520-257X-2021-1-50-57).
8. Morari, V.; Pyrtsac, C.; **Curmei, N.;** Grabco, D.; Rusu, E.V.; Ursachi, V.V.; Tiginyanu, I.M.; Nanoindentation of ZnSnO/Si thin films prepared by aerosol spray pyrolysis. *Rom J Phys.* 2021, 66(3-4), 603-1—603-18 (IF: 1,197).
9. **Cazac, V.** Improved 3D imaging of phase shifting digital holographic microscope by compensation for wavefront distortion. *J Phys Conf Ser.* 2021, 1745, 012020-1—012020-7. Doi: [10.1088/1742-6596/1745/1/012020](https://doi.org/10.1088/1742-6596/1745/1/012020).
10. Bodnar, I.V.; Victorov, I.A.; Kalita, O.V.; Khoroshko, V.V.; **Arushanov, E.** Growth, crystal structure, and properties of Cu₂Cd_{1-x}Zn_xSnS₄ solid solutions. *Solid State Sci.* 2021, 113, 106550. Doi: [10.1016/j.solidstatesciences.2021.106550](https://doi.org/10.1016/j.solidstatesciences.2021.106550) (IF: 2,434).
11. **Cazac, V.;** **Achimova, E.;** **Abashkin, V.;** **Prisacar, A.;** **Losmanschii, C.;** **Meshalkin, A.;** Egiazarian, K. Polarization holographic recording of vortex diffractive optical elements on azopolymer thin films and 3D analysis via phase-shifting digital holographic microscopy. *Opt Express.* 2021, 29(6), 9217—9230. Doi: [10.1364/OE.415639](https://doi.org/10.1364/OE.415639) (IF: 3,669).
12. Goriunov, Yu.V.; **Nateprov, A.N.** Features of the Behavior of Mn²⁺ Ions in the 3D Dirac Semimetal α-Cd₃As₂ from EPR Data. *Phys Solid State.* 2021, 63(2), 223—231. ISSN 1063-7834. Doi [10.1134/S1063783421020098](https://doi.org/10.1134/S1063783421020098) (IF: 0,895).

⁵Teze în culegeri științifice

1. **Cazac, V.; Losmanschii, C.; Achimova, E.; Meshalkin, A.; Abaskin, V.;** Podlipnov, V.; "Characterization of polarization holographic gratings obtained on azopolymer thin films by digital holographic microscopy" in VII International Conference on Information Technology and Nanotechnology (ITNT-2021), 20-24 September 2021, Samara, Russia.
2. Rudzikas, M.; Šetkus, A.; **Curmei, N.; Serban, D.;** Donėlienė, J.; Ulbikas, J.; Ulyashin, A.; "Sol-gel method for double layer coated colored silicon solar cells" in 38th European Photovoltaic Solar Energy Conference and Exhibition, 6 - 10 September, 2021, online, Lisbon, Portugal.
3. **Losmanschii, C.; Achimova, E.; Abaskin, V.,** Botnari, V.; **Maşalchin, A.;** "Photoinduced Anisotropy in Azopolymer Studied by Spectroscopic and Polarimetric Parameters" in 5th International Conference on Nanotechnologies and Biomedical Engineering, 3-5 November 2021, Chisinau, Republic Of Moldova.
4. **Achimova, E.; Abaskin, V.; Cazac, V.; Prisacar, A.; Meshalkin, A.; Losmanschii, C.;** "The Anisotropy of Light Propagation in Biological Tissues" in 5th International Conference on Nanotechnologies and Biomedical Engineering, 3-5 November 2021, Chisinau, Republic Of Moldova.
5. Paiuk, O.; **Meshalkin, A.;** Stronski, A.; **Achimova, E.; Losmanschii, C.;** Korchovyi, A.; Denisova, Z.; Goroneskul, V.; Oleksenko, P.; "Direct Surface Patterning Using Carbazole-based Azopolymer" in 5th International Conference on Nanotechnologies and Biomedical Engineering", 3-5 November 2021, Chisinau, Republic Of Moldova.

6Rapoarte la foruri ştiinţifice

1. **Cazac, V.; Loşmanschii, C.; Achimova, E.; Meşalchin, A.; Abaskin, V.;** Podlipnov, V.; Conferinţa Internaţională "VII International Conference on Information Technology and Nanotechnology (ITNT-2021)", 20-24 Septembrie 2021, Samara, Rusia. "Characterization of polarization holographic gratings obtained on azopolymer thin films by digital holographic microscopy" (oral presentation).
2. Rudzikas, M.; Šetkus, A.; **Curmei, N.; Serban, D.;** Donėlienė, J.; Ulbikas, J.; Ulyashin, A.; Conferinţa Internaţională "38th European Photovoltaic Solar Energy Conference and Exhibition", 6 - 10 Septembrie, 2021, online, Lisabona, Portugalia. "Sol-gel method for double layer coated colored silicon solar cells" (poster).
3. **Meshalkin, A.; Prisacar, A.; Triduh, G.; Abaskin, V.; Achimova, E.;** Tintaru, N.; Conferinţa Internaţională "11th International Advances in Applied Physics & Materials Science Congress (APMAS 2021)", 17-23 Octombrie 2021, Fethie, Turcia "In situ study of chalcogenide thin films growth during vacuum thermal evaporation" (oral presentation).
4. **Achimova, E.; Abaskin, V.; Cazac, V.; Prisacar, A.; Meşalchin, A.; Loşmanschii, C.;** Conferinţa Internaţională "5th International Conference on Nanotechnologies and Biomedical Engineering", 3-5 Noiembrie 2021, Chisinau, Republica Moldova. "The Anisotropy of Light Propagation in Biological Tissues" (oral presentation).
5. Paiuk, O.; **Meşalchin, A.;** Stronski, A.; **Achimova, E.; Loşmanschii, C.;** Korchovyi, A.; Denisova, Z.; Goroneskul, V.; Oleksenko, P.; Conferinţa Internaţională "5th International Conference on Nanotechnologies and Biomedical Engineering", 3-5 Noiembrie 2021, Chisinau, Republica Moldova. "Direct Surface Patterning Using Carbazole-based Azopolymer" (oral presentation).
6. **Loşmanschii, C.; Achimova, E.; Abaskin, V.;** Botnari, V.; **Meşalchin, A.;** Conferinţa Internaţională "5th International Conference on Nanotechnologies and Biomedical Engineering", 3-5 Noiembrie 2021, Chisinau, Republica Moldova. "Photoinduced Anisotropy in Azopolymer Studied by Spectroscopic and Polarimetric Parameters" (oral presentation).

2022

7Articole în reviste ştiinţifice

1. Lähderanta, E.; **Hajdeu-Chicarosh, E.**, Kravtsov, V.; Shakhov, M.A.; Stamov, V.N.; Bodnar, I.; **Arushanov, E.**; **Lisunov, K.G.** Electronic properties of $\text{Cu}_2(\text{Zn,Cd})\text{SnS}_4$ determined by the high-field magnetotransport. *New J Phys.* 2022, **24**(9), 093008-1—093008-14. Doi: [10.1088/1367-2630/ac8b9f](https://doi.org/10.1088/1367-2630/ac8b9f) (IF: 3,716).
2. **Hajdeu-Chicarosh, E.**; Levcenko, S.; Sernac, R.; Bodnar, I.V.; Victorov, I.A.; Iaseniuc, O.; Caballero, R.; Manuel Merino, J.; **Arushanov, E.**; León, M. Spectroscopic ellipsometry study of $\text{Cu}_2\text{Zn}(\text{Ge}_x\text{Si}_{1-x})\text{Se}_4$ bulk polycrystals. *Solid State Sci.* 2022, **132**, 106982. Doi: [10.1016/j.solidstatesciences.2022.106982](https://doi.org/10.1016/j.solidstatesciences.2022.106982) (IF: 3,752).
3. Siminel, N.; Galkin, K.N.; **Arushanov, E.**; Galkin, N.G. Photoconductivity study of Ca_2Si epitaxial film on Si(111) substrate. *Vacuum.* 2022, **203**, 111302. Doi: [10.1016/j.vacuum.2022.111302](https://doi.org/10.1016/j.vacuum.2022.111302) (IF: 3,627).
4. Porfirev, A.; Khonina, S.; Ivliev, N.; **Meshalkin, A.**; **Achimova, E.**; Forbes, A. Writing and Reading With The Longitudinal Component of Light Using Carbazole-Containing Azopolymer Thin Films. *Sci Rep.* 2022, **12**, 3477-1—3477-12. Doi: [10.1038/s41598-022-07440-9](https://doi.org/10.1038/s41598-022-07440-9) (IF: 4,379).

⁸Articole în culegeri științifice

1. Pedrini, G.; Schiebelbein, A.; **Achimova, E.**; **Abashkin, V.** Lensless phase imaging microscopy by multiple intensity diffraction pattern. În: *Proceedings SPIE, V. 12136 "Unconventional Optical Imaging III"*. SPIE Photonics Europe, 3 April - 23 May 2022, Strasbourg, France, p. 1213605-1—1213605-8. Doi: [10.1117/12.2620778](https://doi.org/10.1117/12.2620778).

⁹Teze în culegeri științifice

1. **Meshalkin, A.**; **Achimova, E.**; **Abashkin, V.**; **Prisacar, A.**; **Triduh, G.**; Tsyntsar, N. Nanomultilayer structures based on chalcogenide amorphous semiconductors: obtaining and applications. Book of Abstracts of 5th International Conference on Nanomaterials Science and Mechanical Engineering, July 5-8, 2022, University of Aveiro, Portugal, p. 172. Doi: [10.48528/11t1-bw91](https://doi.org/10.48528/11t1-bw91)
2. Pakstas, V.; Kondrotas, R.; Drabavicius, A.; Naujokaitis, A.; Franckevicius, M.; **Meshalkin, A.**; Cesiulis, H. Improvement of the performance of Sb_2Se_3 solar cell by TiO_2 layer treatment. Abstract book of 14th International Conference on Physics of Advanced Materials (ICPAM-14), September 08-15, 2022, Dubrovnik, Croatia, p. 180-182.
3. **Meshalkin, A.**; **Achimova, E.**; **Abashkin, V.**; **Losmanschii, C.**; Botnari, V.; Pakstas, V. Study of surface relief patterning based on diffraction methods. Abstract book of 14th International Conference on Physics of Advanced Materials (ICPAM-14), September 08-15, 2022, Dubrovnik, Croatia, p. 310-312.
4. **Мешалкин, А.Ю.**; Шойдин, С.А. Актуальные исследования кинетики записи голограмм с использованием формфактора, Тезисы докладов XIX Международной конференции по голографии и прикладным оптическим технологиям HOLOEXPO 2022, 20–22 сентября, 2022, Санкт-Петербург, Россия, с. 306-312. ISBN [978-5-00202-182-6](https://doi.org/10.1007/978-3-030-92328-0_20).
5. Paiuk, O.; **Meshalkin, A.**; Stronski, A.; **Achimova, E.**; **Losmanschii, K.**; Korchovyi, A.; Denisova, Z.; Goroneskul, V.; Oleksenko, P. Direct Surface Patterning Using Carbazole-Based Azopolymer. În: *ICNBME 2021, IFMBE Proceedings 87, 2022*. 5th International Conference on Nanotechnologies and Biomedical Engineering, November 3–5, 2021, Chisinau, Moldova, p. 117—123. Doi: [10.1007/978-3-030-92328-0_16](https://doi.org/10.1007/978-3-030-92328-0_16).
6. **Achimova, E.**; **Abashkin, V.**; **Cazac, V.**; **Prisacar, A.**; **Meshalkin, A.**; **Loshmanschi, C.** The Anisotropy of Light Propagation in Biological Tissues. În: *ICNBME 2021, IFMBE Proceedings 87, 2022*. 5th International Conference on Nanotechnologies and Biomedical Engineering, November 3–5, 2021, Chisinau, Moldova, p. 149—156. Doi: [10.1007/978-3-030-92328-0_20](https://doi.org/10.1007/978-3-030-92328-0_20).
7. **Losmanschii, C.**; **Achimova, E.**; **Abashkin, V.**; **Botnari, V.**; **Meshalkin, A.** Photoinduced Anisotropy in Azopolymer Studied by Spectroscopic and Polarimetric Parameters. În: *ICNBME 2021, IFMBE Proceedings 87, 2022*. 5th International Conference on Nanotechnologies and Biomedical Engineering, November 3–5, 2021, Chisinau, Moldova, p. 314—321. Doi: [10.1007/978-3-030-92328-0_42](https://doi.org/10.1007/978-3-030-92328-0_42).

¹⁰Rapoarte la foruri științifice

1. **Meshalkin, A.**; 5th International Conference on Nanomaterials Science and Mechanical Engineering, July 5-8, 2022, University of Aveiro, Portugal. “Nanomultilayer structures based on chalcogenide amorphous

semiconductors: obtaining and applications”(oral presentation).

2. **Meshalkin, A.**; 14th International Conference on Physics of Advanced Materials (ICPAM-14), September 08-15, 2022, Dubrovnik, Croatia. “Study of surface relief patterning based on diffraction methods (oral presentation).
3. **Meshalkin, A.**; 14th International Conference on Physics of Advanced Materials (ICPAM-14), September 08-15, 2022, Dubrovnik, Croatia. “Improvement of the performance of Sb₂Se₃ solar cell by TiO₂ layer treatment” (poster).
4. **Meshalkin, A.**; XIX Международная конференция по голографии и прикладным оптическим технологиям HOLOEXPO 2022, 20–22 сентября, 2022, Санкт-Петербург, Россия. “Актуальные исследования кинетики записи голограмм с использованием формфактора” (oral presentation).

2023

¹⁴Articole în reviste științifice

1. **Акимова, Е.А.; Абашкин, В.Г.; Мешалкин, А.Ю.; Лошманский, К.С.; Вотнар, В.С.** Поляриметрические характеристики полимера ПЕРС, легированного фотоизомеризуемым хромофорным азокрасителем SY3. *Электронная обработка материалов*. 2023, **59(4)**, 33—41. Doi: [10.52577/eom.2023.59.4.33](https://doi.org/10.52577/eom.2023.59.4.33).
2. Sergeev, S.A.; Robu, S.V.; **Meshalkin, A.Yu.**; Iovu, M.S. Stabilization of Diffraction Gratings Recorded in Poly-N-Ерохуpropylcarbazole Films Doped with Iodoform. *High Energ Chem*. 2023, **57(3)**, 265—269. Doi: [10.1134/S0018143923030128](https://doi.org/10.1134/S0018143923030128) (IF: 0,842).
3. Сергеев, С.А.; Робу, С.В.; **Мешалкин, А.Ю.**; Йову, М.С. Стабилизация дифракционных решеток, записанных в пленках поли-N-эпоксипропилкарбазола с добавкой йодоформа. *Химия высоких энергий*. 2023, **57(3)**, 224—229. Doi: [10.31857/S0023119323030129](https://doi.org/10.31857/S0023119323030129).
4. Nwambaekwe, K.C.; **Batir, V.P.; Dermenji, L.; Curmei, N.D.; Arushanov, E.**; Iwuoha, E.I. Spray-pyrolyzed Cd-substituted kesterite thin-films for photovoltaic applications: Post annealing conditions and property studies. *Mater Chem Phys*. 2023, **301**, 127594-1—127595-15. Doi: [10.1016/j.matchemphys.2023.127594](https://doi.org/10.1016/j.matchemphys.2023.127594) (IF: 4,778).
5. Paiuk, O.; **Meshalkin, A.**; Stronski, A.; **Achimova, E.; Losmanschii, C.; Botnari, V.**; Korchovyi, A.; Popovych, M. Direct magnetic and surface relief patterning using carbazole-based azopolymer. *Phys Chem Solid State*. 2023, **24(1)**, 197—201. Doi: [10.15330/pcss.24.1.197-201](https://doi.org/10.15330/pcss.24.1.197-201).
6. Горюнов, Ю.В.; **Натепров, А.Н.** Анизотропия парамагнитной восприимчивости дираковского полуметалла Cd₃As₂, обусловленная примесью хрома: ЭПР на ионах Cr³⁺. *Физика твердого тела*. 2023, **65(3)**, 367—371. Doi: [10.21883/FIT.2023.03.54733.553](https://doi.org/10.21883/FIT.2023.03.54733.553).
7. **Мешалкин, Ф.Ю.**; Шойдин, С.А. Дифракционная эффективность и эффект формфактора голограмм (обзор). *Оптический журнал*. 2023, **90(5)**, 50—62. Doi: [10.17586/1023-5086-2023-90-05-50-62](https://doi.org/10.17586/1023-5086-2023-90-05-50-62).
8. Petkov, V.H.; Vitale, V.; Di Carlo, P.; Drofa, O.; Mastrangelo, D.; Smedley, A.R.D.; Diémoz, H.; Siani, A.M.; Fountoulakis, I.; Webb, A.R.; Bais, A.; Kift, R.; Rimmer, J.; Rocco Casale, G.; Hansen, G.H.; Svendby, T.; Pazmiño, A.; Werner, R.; Atanassov, A.M.; Láska, K.; De Backer, H.; Mangold, A.; Köhler, U.; Velazco Voltaire, A.; Stübi, R.; Solomatnikova, A.; Pavlova, K.; Sobolewski, P.S.; Johnsen, B.; Goutail, F.; Mišaga, O.; Aruffo, E.; Metelka, L.; Tóth, Z.; Fekete, D.; **Aculinin, A.A.**; Lupi, A.; Mazzola, M.; Zardi, F. An Unprecedented Arctic Ozone Depletion Event During Spring 2020 and Its Impacts Across Europe. *J Geophys Res -Atmospheres*. 2023, **128(3)**, e2022JD037581-1—e2022JD037581-18. Doi: [10.1029/2022JD037581](https://doi.org/10.1029/2022JD037581) (IF: 5,217).
9. Atlan, F.; Becerril-Romero, I.; Giraldo, S.; **Rotaru, V.**; Sánchez, Y.; Gurieva, G.; Schorr, S.; **Arushanov, E.**; Pérez-Rodríguez, A.; Izquierdo-Roca, V.; Guc, M. Stability of Cu₂ZnSnSe₄/CdS heterojunction based solar cells under soft post-deposition thermal treatments. *Sol Energ Mat Sol Cells*. 2023, **249**, 112046. Doi: [10.1016/j.solmat.2022.112046](https://doi.org/10.1016/j.solmat.2022.112046) (IF: 7,305).
10. Lähderanta, E.; **Hajdeu-Chicarosh, E., Arushanov, E.**; Lisunov, K.G. Analysis of defects in kesterite type compounds based on the results of transport investigations. *New J Phys*. 2023 (submitted).
11. **Hajdeu-Chicarosh, E.; Rotaru V.**; Levchenko, S.; Serna, R.; Victorov, I. A.; Guc, M.; Caballero, R.; Merino, J. M.; **Arushanov, E.**; León, M.; Raman and spectroscopic ellipsometry study of Sb₂S₃ and Sb₂Se₃ bulk polycrystals. *Phys. Chem. Chem. Phys.* 2023 (submitted).

Obiectul de mijloace fixe (grupa de obiecte) menționat(e) anterior a fost elaborat în cadrul proiectului cu cifrul 20.80009.5007.03, implementat de

Universitatea de Stat din Moldova

(denumirea autorității/instituției bugetare)

în baza contractului de finanțare nr. 140PS din „03” ianuarie 2023.

Caracteristica succintă a obiectului de mijloace fixe (grupele de obiecte) :

Obiectul de mijloace fixe (grupa de obiecte), corespunde (nu corespunde) condițiilor tehnice

(de specificat ce nu corespunde)

și necesită (nu necesită) remediere

(de specificat remediile)

Obiectul de mijloace fixe (grupa de obiecte) a fost pus(ă) în funcțiune în

(denumirea secției, sectorului, serviciului, locului de exploatare)

Concluzia comisiei

Obiectul de mijloace fixe (grupa de obiecte) menționat(ă) în valoare de

_____ se pune în funcțiune.

(în cifre și în litere)

Documentele anexate: _____

Președintele comisiei

Stepanov Georgeta

(semnătura)

(numele, prenumele)

Membrii comisiei

Prisacaru Veronica

(semnătura)

(numele, prenumele)

Șikimaka Olga

(semnătura)

(numele, prenumele)

Arușanov Ernest

(semnătura)

(numele, prenumele)

Toderaș Angela

(semnătura)

(numele, prenumele)

Obiectul de mijloace fixe (grupa de obiecte) menționat(ă) a fost transmis(ă) de către conducătorul proiectului

(numele, prenumele)

(semnătura)

Obiectul de mijloace fixe (grupa de obiecte) menționat(ă) a fost primit(ă) de către

(funcția)

(numele, prenumele)

(semnătura)

Mențiunea contabilității privind înregistrarea intrării obiectului de mijloace fixe (grupele de obiecte):

nr. _____ din „_____” _____ 20_____

(denumirea, numărul și data documentului primar)

Contabil-șef _____

Cojocaru Liliana

(semnătura)

(numele, prenumele)

„_____” _____ 2023