

# ПОКАЗАТЕЛИ ЭФФЕКТИВНОСТИ

1 квартал 2022 г.

Ким В.Т.

| №<br>п/п                         | Название публикации<br>(статьи, монографии, пособия и т.д.)   | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
|----------------------------------|---|---|---|
| <i>Публикации Web of Science</i> |   |   |   |
| 1                                | Track reconstruction and matching between emulsion and silicon pixel detectors for the SHiP-charm experiment.   | The SHiP collaboration. ... V. Kim, E. Kuznetsova, A. Zelenov et al.  | <i>JINST</i> 17 (2022) 03, P03013                                     |
| 2                                | Search for flavor-changing neutral current interactions of the top quark and the Higgs boson decaying to a bottom quark-antiquark pair at $\sqrt{s} = 13$ TeV.        | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JHEP</i> 02 (2022) 169   |
| 3                                | Measurement of $W\pm\gamma$ differential cross sections in proton-proton collisions at $\sqrt{s}=13$ TeV and effective field theory constraints.                      | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys. Rev. D</i> 105, 052003                                       |
| 4                                | Measurement and QCD analysis of double-differential inclusive jet cross sections in proton-proton collisions at $\sqrt{s} = 13$ TeV                                   | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JHEP</i> 02 (2022) 142   |
| 5                                | Inclusive and differential cross section measurements of single top quark production in association with a Z boson in proton-proton collisions at $\sqrt{s} = 13$ TeV | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JHEP</i> 02 (2022) 107   |
| 6                                | A new calibration method for charm jet identification validated with proton-proton  | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JINST</i> 17 (2022) 03, P03014                                     |

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|    | collision events at $\sqrt{s} = 13$ TeV   | al.   |  |
| 7  | Search for long-lived particles decaying to leptons with large impact parameter in proton–proton collisions at $\sqrt{s} = 13$ TeV.                                       | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Eur.Phys.J.C</i> 82 (2022) 2, 153       |
| 8  | Measurement of double-parton scattering in inclusive production of four jets with low transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV.             | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JHEP</i> 01 (2022) 177                  |
| 9  | Search for heavy resonances decaying to WW, WZ, or WH boson pairs in the lepton plus merged jet final state in proton-proton collisions at $\sqrt{s} = 13$ TeV.           | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Rev.D</i> 105 (2022) 3, 032008     |
| 10 | Study of quark and gluon jet substructure in Z+jet and dijet events from pp collisions  | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>JHEP</i> 01 (2022) 188                  |
| 11 | Measurement of the Inclusive and Differential Higgs Boson Production Cross Sections in the Decay Mode to a Pair of $\tau$ Leptons in pp Collisions at $\sqrt{s} = 13$ TeV | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Rev.Lett.</i> 128 (2022) 8, 081805 |
| 12 | Fragmentation of jets containing a prompt J/ $\psi$ meson in PbPb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV   | The CMS collaboration., ... G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Lett.B</i> 825 (2022) 136842       |

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|    |  | al.  |   |
| 13 | Search for $W\gamma$ resonances in proton-proton collisions at $\sqrt{s}=13$ TeV using hadronic decays of Lorentz-boosted W bosons | The CMS collaboration., ... G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Lett.B</i> 826 (2022) 136888        |
| 14 | Search for strongly interacting massive particles generating trackless jets in proton–proton collisions at $\sqrt{s} = 13$ TeV     | The CMS collaboration., ... G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Eur.Phys.J.C</i> 82 (2022) 3, 213        |
| 15 | Using Z Boson Events to Study Parton-Medium Interactions in Pb-Pb Collisions   | The CMS collaboration., ... G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Rev.Lett.</i> 128 (2022) 12, 122301 |
| 16 | Evidence for X(3872) in Pb-Pb Collisions and Studies of its Prompt Production at $\sqrt{s_{NN}}=5.02$ TeV                          | The CMS collaboration., ... G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev, et al. | <i>Phys.Rev.Lett.</i> 128 (2022) 3, 032001  |

**Ким В.Т. - Лаборатория физики элементарных частиц - 3 квартал 2022 г.**

| №<br>п/п                         | Название публикации<br>(статьи, монографии, пособия и т.д.)   | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
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| <i>Публикации Web of Science</i> |   |   |   |
| 1                                | A portrait of the Higgs boson by the CMS experiment ten years after the discovery   | S. Chatrchyan, V. Khachatryan, A.M. Sirunyan, ..., V. Golovtsov, Y. Ivanov, V. Kim, P. Levchenko, V. Murzin, V. Oreshkin, I. Smirnov, V. Sulimov, L. Uvarov, S. Vavilov, A. Vorobyev, An. Vorobyev                      | Nature 607 (2022) 60-68   |
| 2                                | Search for a W' boson decaying to a vector-like quark and a top or bottom quark in the all-jets final state at $\sqrt{s}= 13$ TeV | A. Tumasyan, <sup>1</sup> W. Adam, J.W. Andrejkovic, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... | JHEP 09 (2022) 088  |
| 3                                | Measurement of the Drell-Yan forward-backward asymmetry at high dilepton masses in proton-proton collisions at $\sqrt{s}= 13$ TeV | A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...             | JHEP 08 (2022) 063  |
| 4                                | Search for Higgs boson pair production in the four b quark final state in proton-proton collisions at $s\sqrt{= 13}$ TeV          | A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin,   | Phys. Rev. Lett. 129 (2022) 081802                                    |

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| 5 | Inclusive nonresonant multilepton probes of new phenomena at $\sqrt{s}=13$ TeV  | I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...<br>A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... | Phys. Rev. D 105 (2022) 112007              |
| 6 | Search for new physics in the lepton plus missing transverse momentum final state in proton-proton collisions at $s\sqrt{=} 13$ TeV | A. Tumasyan, W. Adam, J.W. Andrejkovic, ..., G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...   | JHEP 07 (2022) 067                          |
| 7 | Search for resonances decaying to three W bosons in proton-proton collisions at $\sqrt{s}=13$ TeV                                   | A. Tumasyan, W. Adam, J.W. Andrejkovic, ..., G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...  | Phys. Rev. Lett. 129 (2022) 021802          |
| 8 | Strategies and performance of the CMS silicon tracker alignment during LHC Run 2  | A. Tumasyan, W. Adam, J.W. Andrejkovic, ..G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev   | Nucl. Instrum. Methods A 1037 (2022) 166795 |
| 9 | Identification of hadronic tau lepton decays using a deep neural network  | A. Tumasyan, W. Adam, J.W. Andrejkovic, ..., G. Gavrillov, V. Golovtsov, Y. Ivanov, V. Kim, E.   | JINST 17 (2022) P07023                      |

- 10 Search for high-mass resonances decaying to a jet and a Lorentz-boosted resonance in proton-proton collisions at  $\sqrt{s}=13$  TeV  
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 Phys. Lett. B 832 (2022) 137263
- 11 Search for resonances decaying to three W bosons in the hadronic final state in proton-proton collisions at  $\sqrt{s}=13$  TeV  
 A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrilov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...  
 Phys. Rev. D 106 (2022) 012002
- 12 Probing charm quark dynamics via multiparticle correlations in PbPb collisions at  $\sqrt{s_{NN^-}}=5.02$  TeV  
 A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrilov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...  
 Phys. Rev. Lett. 129 (2022) 022001
- 13 Search for resonant production of strongly coupled dark matter in proton-proton collisions at 13 TeV  
 A. Tumasyan, W. Adam, J. W. Andrejkovic, ..., G. Gavrilov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ...  
 JHEP 06 (2022) 156
- 14 Search for flavor-changing neutral current  
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- interactions of the top quark and Higgs boson in final states with two photons in proton-proton collisions at  $\sqrt{s}=13$  TeV Andrejkovic, ...,G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev
- 15 Measurement of the inclusive and differential WZ production cross sections, polarization angles, and triple gauge couplings in pp collisions at  $\sqrt{s}=13$  TeV A. Tumasyan, W. Adam, J.W. Andrejkovic, ...G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov & A. Vorobyev JHEP 07 (2022) 032
- 16 First search for exclusive diphoton production at high mass with tagged protons in proton-proton collisions at  $\sqrt{s}=13$  TeV A. Tumasyan, W. Adam, T. Bergauer, ...G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev Phys. Rev. Lett. 129 (2022) 011801
- 17 Search for heavy resonances decaying to  $Z(\nu\nu^{\bar{}})V(qq^{\bar{}})$  in proton-proton collisions at  $\sqrt{s}=13$  TeV A. Tumasyan, W. Adam, J.W. Andrejkovic, ...G. Gavrilov, V. Golovtcov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, Phys. Rev. D 106 (2022) 012004
- 18 Study of the Structure of Exotic Nuclei by Proton Elastic Scattering in Inverse Kinematics Using the Active Target IKAR G.D. Alkhazov, A.A. Vorobyov, A.V. Dobrovolsky, G.A. Korolev, A.V. Khanzadeev Phys.Part.Nucl. 53 (2022) 3, 655-673

## Ким В.Т. - Лаборатория физики элементарных частиц – 4 квартал 2022 г.

| №<br>П/П                         | Название публикации<br>(статьи, монографии, пособия и т.д.)  | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
|----------------------------------|--|---|---|
| <i>Публикации Web of Science</i> |  |   |   |
| 1.                               | Search for new particles in an extended Higgs sector with four b quarks in the final state at $\sqrt{s} = 13$ TeV  | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... et al.         | Phys. Lett. B 835 (2022) 137566                                       |
| 2.                               | Nuclear modification of Y states in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV   | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., L. Chtchipounov, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, P. Levchenko, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, A. Vorobyev, ... et al. | Phys. Lett. B 835 (2022) 137397                                       |
| 3.                               | Measurement of the Higgs boson width and evidence of its off-shell contributions to ZZ production  | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... et al.         | Nature Physics 18 (2022) 1329   |
| 4.                               | Evidence for WW/WZ vector boson scattering in the decay channel $lv$ qq produced in association with two jets in proton-proton collisions at $\sqrt{s} = 13$ TeV | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... et al.         | Phys. Lett. B 834 (2022) 137438                                       |
| 5.                               | Search for Fractionally Charged Particles in pp Collisions at $\sqrt{s} = 7$ TeV   | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... et al.         | Phys.Rev.D 106 (2022) 9, 099903 (erratum)                             |
| 6.                               | Measurements of the associated production of a W boson and a charm quark in proton–proton collisions $\sqrt{s} = 8$ TeV  | CMS Collaboration, A. Tumasyan, W. Adam, T. Bergauer, ..., G. Gavrilo, V. Golovtsov, Y. Ivanov, V. Kim, E. Kuznetsova, V. Murzin, V. Oreshkin, I. Smirnov, D. Sosnov, V. Sulimov, L. Uvarov, S. Volkov, A. Vorobyev, ... et al.         | Eur.Phys.J.C 82 (2022) 12, 1094                                       |
| 7.                               | Measurement of the top quark mass with lepton+jets final   | CMS Collaboration, A. Tumasyan, W. Adam, T.   | Eur.Phys.J.C 82 (2022) 4, 323 (erratum)                               |



states using pp collisions at  $\sqrt{s} = 13$  TeV

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8. **Dijet events with large rapidity separation in proton-proton collisions at  $\sqrt{s} = 2.76$  TeV with the CMS detector**
9. **First measurement of the forward rapidity gap distribution in pPb collisions at 8 TeV**
10. **VMM3 ASIC as a potential front end electronics solution for future Straw Trackers**

A. Iu. Egorov

D. Sosnov

V. Bautin, ..., E. Kuznetsova, V. Maleev, ..., D. Sosnov, A. Zelenov

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**Федин О.Л. - Лаборатория адронной физики - 2 квартал 2022**

| №<br>П/П                                | Название публикации<br>(статьи, монографии, пособия и т.д.)   | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
|---|---|---|---|
| <b><i>Публикации Web of Science</i></b> |   |   |   |
| 1.                                      | Search for associated production of a Z boson with an invisibly decaying Higgs boson or dark matter candidates at $\sqrt{s} = 13$ TeV with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Lett. B 829 (2022) 137066                                       |
| 2.                                      | Measurement of the nuclear modification factor for muons from charm and bottom hadrons in $Pb+Pb$ collisions at 5.02 TeV with the ATLAS detector              | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Lett. B 829 (2022) 137077                                       |
| <b><i>Иные публикации</i></b>           |   |   |   |
| 1.                                      | Search for resonant pair production of Higgs bosons in the $bb^{-}bb^{-}$ final state using $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector    | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. D 105 (2022) 092002  |
| 2.                                      | Measurement of the energy asymmetry in $tt^{-}j$ production at 13 TeV with the ATLAS experiment and interpretation in the SMEFT framework                     | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 374   |

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| 3. | Measurements of azimuthal anisotropies of jet production in Pb+ Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector                        | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. C 105 (2022) 064903 |
| 4. | Constraints on Higgs boson production with large transverse momentum using $H \rightarrow b\bar{b}$ decays in the ATLAS detector                           | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. D 105 (2022) 092003 |
| 5. | Search for flavour-changing neutral-current interactions of a top quark and a gluon in $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector      | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 334  |
| 6. | Determination of the parton distribution functions of the proton using diverse ATLAS data from $pp$ collisions at $\sqrt{s} = 7, 8$ and 13 TeV             | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 438  |
| 7. | Search for single production of a vectorlike $T$ quark decaying into a Higgs boson and top quark with fully hadronic final states using the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. D 105 (2022) 092012 |
| 8. | Measurements of differential cross-sections in top-quark pair events with a high transverse momentum top quark and limits on                               | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev,  | JHEP 2206 (2022) 063           |

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|    | beyond the Standard Model contributions to top-quark pair production with the ATLAS detector at $\sqrt{s} = 13$ TeV                                | A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha  |  |
| 9. | Search for neutral long-lived particles in $pp$ collisions at $\sqrt{s} = 13$ TeV that decay into displaced hadronic jets in the ATLAS calorimeter | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha |  |

## Федин О.Л. - Лаборатория адронной физики - 3 квартал 2022

| №<br>П/П                         | Название публикации<br>(статьи, монографии, пособия и т.д.)  | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
|----------------------------------|--|---|---|
| <i>Публикации Web of Science</i> |  |   |   |
| 1.                               | Modelling and computational improvements to the simulation of single vector-boson plus jet processes for the ATLAS experiment  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | JHEP 2208 (2022) 089  |
| 2.                               | Study of $B_c^+ \rightarrow J/\psi D_s^+$ and $B_c^+ \rightarrow J/\psi D_s^{*+}$ decays in $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector                           | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | JHEP 2208 (2022) 087  |
| 3.                               | Measurements of the Higgs boson inclusive and differential fiducial cross-sections in the diphoton decay channel with $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | JHEP 2208 (2022) 027  |
| 4.                               | Direct constraint on the Higgs–charm coupling from a search for Higgs boson decays into charm quarks with the ATLAS detector   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 717   |
| 5.                               | Search for invisible Higgs-boson decays in events with vector-boson fusion signatures  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev,  | JHEP 2208 (2022) 104  |

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|                               | using $139 \text{ fb}^{-1}$ of proton-proton data recorded by the ATLAS experiment   | V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha  |                                    |
| 6.                            | Search for events with a pair of displaced vertices from long-lived neutral particles decaying into hadronic jets in the ATLAS muon spectrometer in pp collisions at $\sqrt{s} = 13 \text{ TeV}$ | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. D 106 (2022) 032005     |
| 7.                            | Measurements of jet observables sensitive to b-quark fragmentation in $t\bar{t}$ events at the LHC with the ATLAS detector   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. D 106 (2022) 032008     |
| 7.                            | Observation of $WWW$ production in $pp$ collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Phys. Rev. Lett. 129 (2022) 061803 |
| <b><i>Иные публикации</i></b> |  |   |                                    |
| 1.                            | Measurement of Higgs boson decay into $b$ -quarks in associated production with a top-quark pair in $pp$ collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector                       | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | JHEP 2206 (2022) 097               |
| 2.                            | A search for an unexpected asymmetry in the production of $e^+\mu^-$ and $e^-\mu^+$ pairs in proton-proton collisions recorded by the ATLAS detector at $\sqrt{s} = 13 \text{ TeV}$              | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev,  | Phys. Lett. B 830 (2022) 137106    |

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|    |  | A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha  |                               |
| 3. | Search for long-lived charginos based on a disappearing-track signature using $136 \text{ fb}^{-1}$ of $pp$ collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector            | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 606 |
| 4. | Measurements of Higgs boson production cross-sections in the $H \rightarrow \tau^+\tau^-$ decay channel in $pp$ collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector        | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | JHEP 2208 (2022) 175          |
| 5. | Constraints on Higgs boson properties using $WW^*(\rightarrow e\nu\mu\nu)jj$ production in $36.1 \text{ fb}^{-1}$ of $\sqrt{s} = 13 \text{ TeV}$ $pp$ collisions with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 622 |
| 6. | Two-particle Bose–Einstein correlations in $pp$ collisions at $\sqrt{s} = 13 \text{ TeV}$ measured with the ATLAS detector at the LHC  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | Eur. Phys. J. C 82 (2022) 608 |

**Федин О.Л. - Лаборатория адронной физики - 4 квартал 2022**

| №<br>П/П                         | Название публикации<br>(статьи, монографии, пособия и т.д.)   | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.)           |
|----------------------------------|---|---|---|
| <i>Публикации Web of Science</i> |   |   |   |
| 1                                |   |   |   |
| 2                                |   |   |   |
| <i>Иные публикации</i>           |   |   |   |
| 1                                | Search for pair-produced scalar and vector leptoquarks decaying into third-generation quarks and first- or second-generation leptons in $pp$ collisions with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2210.04517">https://arxiv.org/abs/2210.04517</a> |
| 2                                | Search for Higgs boson pair production in association with a vector boson in $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector                                     | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2210.05415">https://arxiv.org/abs/2210.05415</a> |
| 3                                | Deep generative models for fast photon shower simulation in ATLAS   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2210.06204">https://arxiv.org/abs/2210.06204</a> |
| 4                                | Search for pair-production of vector-like quarks in $pp$ collision events at $\sqrt{s} = 13$ TeV with at least one leptonically decaying $Z$                                    | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev,  | <a href="https://arxiv.org/abs/2210.15413">https://arxiv.org/abs/2210.15413</a> |



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|   | boson and a third-generation quark with the ATLAS detector   | A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha  |   |
| 5 | Search for $tt\bar{H}/A\rightarrow tt\bar{t}t\bar{t}$ production in the multilepton final state in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector           | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.01136">https://arxiv.org/abs/2211.01136</a> |
| 6 | Constraining the Higgs boson self-coupling from single- and double-Higgs production with the ATLAS detector using $pp$ collisions at $\sqrt{s} = 13$ TeV                             | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.01216">https://arxiv.org/abs/2211.01216</a> |
| 7 | A search for heavy Higgs bosons decaying into vector bosons in same-sign two-lepton final states in $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector                   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.02617">https://arxiv.org/abs/2211.02617</a> |
| 8 | Search for boosted diphoton resonances in the 10 to 70 GeV mass range using $138\text{ fb}^{-1}$ of 13 TeV $pp$ collisions with the ATLAS detector                                   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.04172">https://arxiv.org/abs/2211.04172</a> |
| 9 | Constraints on spin-0 dark matter mediators and invisible Higgs decays using ATLAS 13 TeV $pp$ collision data with two top quarks and missing transverse momentum in the final state | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.05426">https://arxiv.org/abs/2211.05426</a> |

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| 10 | Search for dark matter produced in association with a dark Higgs boson decaying into $W^+W^-$ in the one-lepton final state at $\sqrt{s} = 13$ TeV using $139 \text{ fb}^{-1}$ of pp collisions recorded with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.07175">https://arxiv.org/abs/2211.07175</a> |
| 11 | Search for doubly charged Higgs boson production in multi-lepton final states using $139 \text{ fb}^{-1}$ of proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.07505">https://arxiv.org/abs/2211.07505</a> |
| 12 | Search for supersymmetry in final states with missing transverse momentum and three or more $b$ -jets in $139 \text{ fb}^{-1}$ of proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector                        | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.08028">https://arxiv.org/abs/2211.08028</a> |
| 13 | Search for new phenomena in multi-body invariant masses in events with at least one isolated lepton and two jets using $\sqrt{s} = 13$ TeV proton-proton collision data collected by the ATLAS detector                          | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.08945">https://arxiv.org/abs/2211.08945</a> |
| 14 | Observation of gauge boson joint-polarisation states in $W^\pm Z$ production from pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.09435">https://arxiv.org/abs/2211.09435</a> |
| 15 | Measurement of substructure-dependent jet suppression in $Pb+Pb$ collisions at 5.02 TeV with the ATLAS detector  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev,  | <a href="https://arxiv.org/abs/2211.11470">https://arxiv.org/abs/2211.11470</a> |

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|    |  | A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha  |   |
| 16 | Search for dark matter produced in association with a single top quark and an energetic $W$ boson in $\sqrt{s} = 13$ TeV $pp$ collisions with the ATLAS detector | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.13138">https://arxiv.org/abs/2211.13138</a> |
| 17 | ATLAS flavour-tagging algorithms for the LHC Run 2 $pp$ collision dataset  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.16345">https://arxiv.org/abs/2211.16345</a> |
| 18 | Measurement of $Z\gamma\gamma$ production in $pp$ collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector  | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.14171">https://arxiv.org/abs/2211.14171</a> |
| 19 | Tools for estimating fake/non-prompt lepton backgrounds with the ATLAS detector at the LHC   | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.16178">https://arxiv.org/abs/2211.16178</a> |
| 20 | Charged-hadron production in $pp$ , $p+Pb$ , $Pb+Pb$ , and $Xe+Xe$ collisions at $\sqrt{s_{NN}} = 5$ TeV with the ATLAS detector at the LHC                      | ATLAS Collaboration, O. Fedin, Yu. Naryshkin, V. Maleev, V. Schegelsky, V. Solovyev, A. Ezhilov, Y. Ryabov, V. Grachev, M. Levchenko, D. Pudzha | <a href="https://arxiv.org/abs/2211.15257">https://arxiv.org/abs/2211.15257</a> |

# Публикации в 2022 г.

## Лаборатория физики экзотических ядер

- <sup>1</sup>D. A. Nesterenko, K. Blaum, P. Delahaye, S. Eliseev, T. Eronen, P. Filianin, Z. Ge, M. Hukkanen, A. Kankainen, Yu. N. Novikov, A. V. Popov, A. Raggio, M. Stryczyk, and V. Virtanen, "*Direct determination of the excitation energy of the quasistable isomer  $180m\text{Ta}$* ", Phys. Rev. C 106, 024310 – Published 8 August 2022.
- <sup>2</sup>J. Khuyagbaatar, H. Brand, Ch. E. Düllmann, F. P. Heßberger, E. Jäger, B. Kindler, J. Krier, N. Kurz, B. Lommel, Yu. Nechiporenko, Yu. N. Novikov, B. Schausten, and A. Yakushev, "*Search for fission from a long-lived isomer in  $250\text{No}$  and evidence of a second isomer*", Phys. Rev. C 106, 024309 – Published 5 August 2022.
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ПОКАЗАТЕЛИ ЭФФЕКТИВНОСТИ LRNP-HEPD

2022 г.

| № п/п                            | Название публикации<br>(статьи, монографии, пособия и т.д.)  | Авторы  | Где опубликовано<br>(название журнала, сборника,<br>издательства и т.д.) |
|----------------------------------|--|---|--|
| <i>Публикации Web of Science</i> |  |   |  |
| 1                                | Transverse-single-spin asymmetries of charged pions at midrapidity in transversely polarized p+p collisions at $\sqrt{s}=200$ GeV  | Phenix Collaboration (D. Ivanishchev, D. Kotov, M. Malaev, V. Riabov, Yu. Ryabov, A.Ханзадеев)                  | Phys. Rev. D 105, 032003   |
| 2                                | Measurement of prompt Ds+-meson production and azimuthal anisotropy in Pb–Pb collisions at $\sqrt{s_{NN}}=5.02$ TeV  | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | Physics Letters B Volume 827, 10, 2022, 136986                           |
| 3                                | Prompt D0, D+, and D*+ production in Pb–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV  | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | JHEP 01 (2022) 174   |
| 4                                | Transverse single spin asymmetries of forward neutrons in p+p, p+Al, and p+Au collisions at $\sqrt{s_{NN}}=200$ GeV as a function of transverse and longitudinal momenta | Phenix Collaboration (D. Ivanishchev, D. Kotov, M. Malaev, V. Riabov, Yu. Ryabov, A.Ханзадеев)                  | Phys. Rev. D 105, 032004   |
| 5                                | Measurement of inclusive charged-particle b-jet production in pp and p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV   | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | JHEP 01 (2022) 178   |
| 6                                | Production of light (anti)nuclei in pp collisions at $\sqrt{s} = 13$ TeV   | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | JHEP 01 (2022) 106   |
| 7                                | Measurement of the Groomed Jet Radius and Momentum Splitting Fraction in pp and Pb-Pb Collisions at $\sqrt{s_{NN}}=5.02$ TeV   | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | Phys.Rev.Lett. 128 (2022) 10, 102001                                     |
| 8                                | Kinematic dependence of azimuthal anisotropies in p+Au, p+Au, d+Au, d+Au, and $^3\text{He}+Au$ at $\sqrt{s_{NN}}=200$ GeV  | Phenix Collaboration (D. Ivanishchev, D. Kotov, M. Malaev, V. Riabov, Yu. Ryabov, A.Ханзадеев)                  | Phys.Rev.C 105 (2022) 2, 024901  |
| 9                                | Measurement of Prompt D <sup>0</sup> , $\Lambda_c^+$ , and $\Sigma_c^{0,++}$ (2455) Production in Proton–Proton Collisions at $\sqrt{s} = 13$ TeV                        | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев) | Phys.Rev.Lett. 128 (2022) 1, 012001                                      |

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| 10 | <b>Charm-quark fragmentation fractions and production cross section at midrapidity in pp collisions at the LHC</b>  | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев)                          | <i>Phys.Rev.D</i> 105 (2022) 1, L011103      |
| 11 | <b>Production of <math>\Lambda</math> and <math>Ks0</math> in jets in p–Pb collisions at <math>\sqrt{s_{NN}}=5.02</math> TeV and pp collisions at <math>\sqrt{s}=7</math> TeV</b> | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев)                          | <i>Phys.Lett.B</i> 827 (2022) 136984         |
| 12 | <b>Nuclear modification factor of light neutral-meson spectra up to high transverse momentum in p–Pb collisions at <math>s_{NN}=8.16</math> TeV</b>                               | ALICE Collaboration (М.Жалов, В.Иванов, Е.Крышень, М.Малаев, В.Никулин, А.Рябов, В.Рябов, Ю.Рябов, А.Ханзадеев)                          | <i>Phys.Lett.B</i> 827 (2022) 136943         |
| 13 | <b>Status and initial physics performance studies of the MPD experiment at NICA MPD Collaboration</b>   | Коллаборация MPD (А. Васильев, В.Гузей, М. Жалов, Д.Иванищев, П.Кравцов, Л. Коченда, Д. Котов, М.Малаев, В. Рябов, Ю.Рябов, А.Ханзадеев) | <i>Eur.Phys.J.A</i> 58 (2022) 7, 140         |
| 14 | <b>Neutral to charged kaon yield fluctuations in Pb – Pb collisions at <math>\sqrt{s_{NN}}=2.76</math> TeV</b>  | Коллаборация ALICE (В.Иванов, Е.Крышень, А.Ханзадеев, М.Малаев, В.Никулин, А. Рябов, В.Рябов, Ю.Рябов, М.Жалов)                          | <i>Phys.Lett.B</i> 832 (2022) 137242         |
| 15 | <b>Hypertriton Production in p-Pb Collisions at <math>\sqrt{s_{NN}}=5.02</math> TeV</b>   | Коллаборация ALICE (В.Иванов, Е.Крышень, А.Ханзадеев, М.Малаев, В.Никулин, А. Рябов, В.Рябов, Ю.Рябов, М.Жалов)                          | <i>Phys. Rev. Lett.</i> 128, 252003 23       |
| 16 | <b>Study of very forward energy and its correlation with particle production at midrapidity in pp and p-Pb collisions at the LHC</b>  | Коллаборация ALICE (В.Иванов, Е.Крышень, А.Ханзадеев, М.Малаев, В.Никулин, А. Рябов, В.Рябов, Ю.Рябов, М.Жалов)                          | <i>JHEP</i> 08, 086 (2022)                   |
| 17 | <b>Measurement of <math>\psi(2S)</math> nuclear modification at backward and forward rapidity in p+p, p+Al, and p+Au collisions at <math>\sqrt{s_{NN}}=200</math> GeV</b>         | PHENIX Collaboration (Д.Иванищев, Д.Котов, В.Рябов, Ю.Рябов, А.Ханзадеев)  | <i>Phys.Rev.C</i> 105 (2022) 064912          |
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| 4  | Исследование структуры экзотических ядер на установке с активной мишенью ИКАР методом упругого рассеяния протонов в инверсной кинематике | Г.Д.Алхазов, А.А.Воробьев, А.В.Добровольский, Г.А.Королев, А.В.Ханзадеев                                      | ЭЧАЯ (Элементарные частицы и атомное ядро) №52., 2022                      |
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| 6  | Prospects for diffractive dijet photoproduction at the EIC   | . V. Guzey (PNPI), M. Klasen  | SciPost Phys.Proc. 8 (2022) 142  |
| 7  | Probing the properties of dense nuclear matter with photon conversions at NICA.  | N. Burmasov, E. Kryshen, D. Ivanishchev, D. Kotov, M. Malaev, V. Riabov, Y. Ryabov.                           | Phys.Scripta 97 (2022) 5, 054013   |
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| 1 | Рабочее совещание Feb 9-11, 2022 | Photon structure and energy dependence of diffraction, CFNS Workshop   | В. Гузей  | Target Fragmentation and diffraction physics with novel processes: ultraperipheral, electron-ion, and hadron collision | онлайн       |
| 2 | Рабочее совещание Feb 9-11, 2022 | Jets in UPCs, CFNS Workshop  | В. Гузей  | Target Fragmentation and diffraction physics with novel processes: ultraperipheral, electron-ion, and hadron collision | онлайн       |
| 3 | конференция                      | Large hadron collider physics conference LHCP 2022   | Е.Л. Крышень  | ALICE Performance highlights   | приглашенный |
| 4 | конференция                      | DIS2022  | R. Lavicka, N. Burmasov, E. Kryshen, P. Buehler for the ALICE | Future BSM studies using UPCs with ALICE at the LHC.   | постер       |
| 5 | конференция                      | LXXII International conference Nucleus-2022, Moscow. 11-16 July  | .В. Рябов   | Status of the MPD@NICA Project   | пленарный    |
| 6 | конференция                      | LXXII International conference "Nucleus 2022 11-16 июля 2022 г.Москва  | Н. Бурмасов   | Searches for new physics with ultra-peripheral collisions at the LHC   | секция       |
| 7 | конференция                      | XI International Conference on New Frontiers in Physics: 30 августа -- 11 сентября Колимвари (Крит, Греция)              | Н. Бурмасов   | Perspectives of tau g-2 measurements with ALICE  | секция       |
| 8 | конференция                      | The 6th International Conference on Particle Physics and Astrophysics (ICPPA-2022), Moscow, Russia, (29.11 -2.12, 2022). | М. В. Малаев  | Prospects for the study of the hot QCD matter with heavy-flavor probes at ALICE-3 (HL-LHC)                             | секция       |
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| 10 | конференция | <b>The 6th International Conference on Particle Physics and Astrophysics (ICPPA-2022), Moscow, Russia, (29.11 -2.12,</b>        | <b>Е. Л. Крышень</b>  | <b>Overview of recent heavy-ion collisions results from ALICE</b>                                      | <b>пленарный</b> |
| 11 | конференция | <b>13th International workshop on Multiple Partonic Interactions at the LHC (MPI@LHC 2022), Madrid, Spain (14-18 Nov 2022).</b> | <b>Е. Л. Крышень</b>  | <b>Recent ALICE results on photon-induced interactions.</b>  | <b>пленарный</b> |
| 12 | конференция | <b>International conference PhysicA.SPb/2022. St. Petersburg, Russia. (17-21 October 2022)</b>                                  | <b>Н. А. Бурмасов</b> | <b>Prospects of light-by-light scattering measurements and axion-like particle searches at the LHC</b> | <b>постер</b>    |
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## ЛАБОРАТОРИЯ МЕЗОННОЙ ФИЗИКИ

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**Иванов Ю.М. - Лаборатория физики экзотических ядер**

| №<br>П/П                         | Название публикации<br>(статьи, монографии, пособия и т.д.)                     | Авторы             | Где опубликовано<br>(название журнала, сборника, издательства и т.д.)                 |
|----------------------------------|---|--------------------|---|
| <i>Публикации Web of Science</i> |   |                    |   |
| 1                                | Feasibility of crystal-assisted collimation in the CERN accelerator complex     | W. Scandale et al. | International Journal of Modern Physics A, Vol. 37, No. 13 (2022) 2230004 (108 pages) |
| 2                                | Multiple scattering of channeled and non-channeled positively charged particles | W. Scandale et al. | Eur. Phys. J. Plus (2022) 137:811   |

**Васильев А.А. - Лаборатория криогенной и сверхпроводящей техники**

| №<br>П/П                                | Название публикации<br>(статьи, монографии, пособия и т.д.)  | Авторы  | Где опубликовано<br>(название журнала, сборника, издательства и т.д.)                                    |
|---|--|---|--|
| <b><i>Публикации Web of Science</i></b> |  |   |  |
| 1                                       | Observation of Two New Excited $\Xi_b^0$ States Decaying to $\Lambda_b^0 K\text{-}\pi^+$   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| 2                                       | Measurement of the Nuclear Modification Factor and Prompt Charged Particle Production in p-Pb and pp Collisions at $\sqrt{s_{NN}} = 5$ TeV   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| 3                                       | Observation of the $B^0 \rightarrow D^- * K^+\pi^-$ and $B_s^0 \rightarrow D^- * K^+\pi^-$ decays  | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review D  |
| 4                                       | Measurement of the photon polarization in $\Lambda_b^0 \rightarrow \Lambda \gamma$ decays  | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review D  |
| 5                                       | $J/\psi$ photoproduction in Pb-Pb peripheral collisions at $\sqrt{s_{NN}} = 5$ TeV   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review C  |
| 6                                       | Study of Z Bosons Produced in Association with Charm in the Forward Region   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| 7                                       | Evidence for a New Structure in the $J/\psi p$ and $J/\psi p^-$ Systems in $B_s^0 \rightarrow J/\psi p^-$ Decays   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| 8                                       | Identification of charm jets at LHCb   | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Journal of Instrumentation   |
| 9                                       | Analysis of Neutral Formula Presented-Meson Decays into Two Muons  | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| 10                                      | Measurement of prompt charged-particle production in pp collisions at $\sqrt{s} = 13$ TeV  | Ivshin K.A., Solovev A.N., Solovyev I.N., LHCb collaboration et al. | Physical Review Letters  |
| <b><i>Иные публикации</i></b>           |  |   |  |
| 1                                       | Разработка системы сцинтилляционных детекторов для подавления космического излучения в рамках проекта по исследованию реакции ядерного dd-синтеза с поляризацией исходных частиц при низких энергиях (Polfusion) | А.Ю. Рождественский, П.В. Кравченко                                 | НЕДЕЛЯ НАУКИ ФИЗМЕХ<br>Сборник аннотаций докладов Всероссийской научной конференции 4–9 апреля 2022 года |



|   |  |                               |  |
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| 2 | <p>Разработка и оптимизация источника атомарного поляризованного пучка в проекте по исследованию реакции ядерного dd-синтеза с поляризацией исходных частиц при энергиях до 100 кэВ (pofusion)</p> | В.Е. Ларионов, П.В. Кравченко | <p>НЕДЕЛЯ НАУКИ ФИЗМЕХ<br/>Сборник аннотаций докладов Всероссийской научной конференции 4–9 апреля 2022 года</p> |
| 3 | <p>Получение чистых изотопных форм водорода и хроматографический анализ в эксперименте по поиску D3He синтеза</p>  | Н.С. Буданов, П.В. Кравченко  | <p>НЕДЕЛЯ НАУКИ ФИЗМЕХ<br/>Сборник аннотаций докладов Всероссийской научной конференции 4–9 апреля 2022 года</p> |

## Публикации отдела ОТД за 2022 год

1. **А.Г. Крившич, В.А. Андреев, М.И. Гасанов, Д.М. Гасанов** и др. Исследование рабочих характеристик длинных дрейфовых трубок с ультратонкими стенками для спектрометра протонов PAS для проекта FAIR (Германия). Препринт НИЦ «Курчатовский институт» – ПИЯФ 3062. Гатчина, 28 с. (2022).
2. **А.Г. Крившич, В.Ю. Д.С. Ильин.** Стратегия оснащения экспериментальных установок реактора ПИК детекторными системами. Препринт НИЦ «Курчатовский институт» – ПИЯФ 3067. Гатчина, 20 с. (2022).
3. Shixin Zhao, Chengxun Yuan, A.A. Кудрявцев, Jingfeng Yao, **Г.Д. Шабанов.** Влияние магнитных и электрических полей на динамику образования плазмоидов в гатчинском разряде. ЖТФ, 92 (3), 366 (2022). DOI: 10.21883/JTF.2022.03.52132.263-21 [Shixin Zhao, Chengxun Yuan, A.A. Kudryavtsev, Jingfeng Yao, and **G.D. Shabanov.** Effect of Magnetic and Electric Fields on the Dynamics of Plasmoid Formation in the Gatchina Discharge. Technical Physics, Vol. 67, No. 2, pp. 171 (2022). DOI: 10.1134/S1063784222030069].

## Список публикаций Отдела мюонных камер за 2022 год

1. **Г. Е. Гаврилов**, М. Э. Бузоверя, И. А. Карпов, М. В. Таценко, М. В. Ткаченко, А. А. Дзюба, О. Е. Маев, П. В. Середин, Д. Л. Голощапов «Комплексная оценка состояния поверхности катода пропорциональной камеры после работы в эксперименте на Большом адронном коллайдере», **Известия Российской академии наук. Серия физическая № 8, том 86, с. 1155-1161, 2022.**  
**G. E. Gavrilov**\*, M. E. Buzoverya, I. A. Karpov, M. V. Tatsenko, M. V. Tkachenko, A. A. Dzyuba, O. E. Maev, P. V. Seredin, and D. L. Goloshchapov “Comprehensive Study of a Proportional Chamber Cathode’s Surface after Its Operation in an Experiment at the Large Hadron Collider”, **Bulletin of the Russian Academy of Sciences: Physics, 2022, Vol. 86, No. 8, pp. 956–961. © Allerton Press, Inc., 2022.**

### Конференции

1. **LXXII Международная конференция по ядерной физике «Ядро-2022. Физика атомного ядра и элементарных частиц. Ядерно-физические технологии» 11 - 16 июля 2022 г.** Москва, МГУ, Гаврилов Геннадий “Наноструктурные источники эмиссионных токов в многопроволочных пропорциональных камерах на LHC”

**Головцов В.Л.**

| №<br>П/П                         | Название публикации<br>(статьи, монографии, пособия и т.д.)  | Авторы   | Где опубликовано<br>(название журнала, сборника, издательства и т.д.) |
|----------------------------------|--|--|---|
| <i>Публикации Web of Science</i> |  |  |   |
| 1                                | Observation of the $B_c^+ B_c^+$ Meson in Pb-Pb and pp Collisions at $\sqrt{s_{NN}}$ s $NN = 5.02$ TeV and Measurement of its Nuclear Modification Factor #1 | CMS Collaboration ( A. Tumasyan, ..., V. Golovtsov ... L. Uvarov et al).<br>(Jun 21, 2022) | Published in: Phys.Rev.Lett. 128 (2022) 25, 252301                    |

**Публикации ЛМНС в 2022 году :**

1. O.V. Miklukho, V.A. Andreev, G.V. Fedotov, A.A. Izotov, A.Yu. Kisselev, N.G. Kozlenko, D.V. Novinskiy, A.V. Shvedchikov, S.S. Volkov, A.A. Zhdanov, STUDY OF NUCLEON CORRELATIONS IN NUCLEI BY THE INCLUSIVE ( $p, p'$ ) - REACTION AT 1 GeV, PNPI Research Report “Main scientific activities 2019-2023” (HEPD), Gatchina, to be published in 2023.
2. S.L. Belostotski, G.V. Fedotov, A.A. Izotov, S.I. Manaenkov, O.V. Miklukho, V.A. Stepanov, D.O. Veretennikov, S.S. Volkov, A.A. Zhdanov, STATUS OF THE FORWARD TIME-OF-FLIGHT DETECTOR FOR THE PANDA EXPERIMENT AT GSI, PNPI Research Report “Main scientific activities 2019-2023” (HEPD), Gatchina, to be published in 2023.