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**Суммарный ПРНД (за 2018-2019 гг.) = 445.97**

**Статьи:**

1. Yu.Musienko, A.Heering, R.Ruchti, M.Wayne, Yu.Andreev, A.Karneyeu, V.Postoev. Radiation damage of prototype SiPMs for the CMS HCAL Barrel phase I upgrade, Nucl. Instrum. Methods Phys. Res. A, 912 (2018), p. 359, **ПРНД =  $1,433 \cdot 30 \cdot 0,2 = 8,60$**
2. CMS HCAL Collaboration (S. Chatrchyan (Yerevan Phys. Inst.) et al.). Brightness and uniformity measurements of plastic scintillator tiles at the CERN H2 test beam, Sep 25, 2017. 17 pp., Published in JINST 13 (2018) no.01, P01002 (356 авторов). **ПРНД =  $1,366 \cdot 30 \cdot 0,04 = 1,60$**
3. A. Heering, Yu. Musienko, J. Gonzales, A. Karneyeu, M. Wayne, R. Ruchti, M. Moll, Low temperature characteristics of SiPMs after very high neutron irradiation, 2018., Published in Nucl.Instrum.Meth. (2018), DOI: 10.1016/j.nima.2018.09.111, **ПРНД =  $1,433 \cdot 30 \cdot 0,2 = 8,60$**
4. E. Garutti, Yu. Musienko, Radiation damage of SiPMs (review), Nucl. Instrum. Methods, A922 (2019), pp. 69-84, **ПРНД =  $1,433 \cdot 30 \cdot 0,5 = 21,50$**
5. A. Heering, Yu. Musienko, J. Gonzales, A. Karneyeu, M. Wayne, R. Ruchti, M. Moll, Low temperature characteristics of SiPMs after very high neutron irradiation, Nucl. Instrum. Methods, A936 (2019), pp. 671-673, **ПРНД =  $1,433 \cdot 30 \cdot 0,2 = 8,60$**

**Препринты:**

1. M. Lucchini, Yu. Musienko, A. Heering, Experimental method for monitoring temperature stability of SiPMs with extremely high dark count rate, CMS IN -2019/004, August 1, 2019

**ПРНД =  $3/3 = 1$**

**Суммарный ПРНД по статьям/препринтам не CMS = 49.9**

**Доклады на конференциях и труды конференций:**

1. Yu.Musienko "SiPM applications in High-Energy and Neutrino Physics (invited review talk)", SENSE TechForum, Geneva, June 21-22, 2018, <https://www.sense-pro.org/news/latest-news/61-sense-techforum>, **ПРНД = 25**
2. A. Heering, Yu. Musienko, J. Gonzales, A. Karneyeu, M. Wayne, R. Ruchti, M. Moll, "Low temperature characteristics of SiPMs after very high neutron irradiation", 14th Pisa Meeting on Advanced Detectors, La Biodola, Isola d'Elba (Italy), 27 May 2018 - 02 June 2018, <https://agenda.infn.it/conferenceDisplay.py?confId=13450>, **ПРНД =  $10 \cdot 0,2 = 2$**
3. E. Garutti, Yu. Musienko, T. Tsang "Radiation hardness (introduction)", International Conference on the Advancement of Silicon Photomultipliers (ICASiPM-2018), 11-15 June 2018, Palais Hirsch, Schwetzingen, Germany, <http://www.icasipm.physics.gatech.edu/>, **ПРНД =  $15/3 = 5$**

4. Yu. Musienko, A. Heering, Yu. Andreev, A. Karneyeu, M. Wayne, "Radiation damage study of SiPMs for the CMS BH HGCAL", 20th Annual RDMS CMS Collaboration Conference, Tashkent-Samarkand, Uzbekistan, 12-15 September, 2018, <http://rdms2018.jinr.ru/>, ПРНД = 13
5. Yu. Musienko, A. Heering, A. Karneyeu, M. Wayne, "Radiation hardness of SiPMs (invited review talk)", 5th International Workshop on New Photon-Detectors, Nov. 27-29, 2018, The University of Tokyo, Tokyo, Japan, <https://www-conf.kek.jp/PD18/PD18conf/Overview.html>, ПРНД = 13.75
6. Yu. Musienko, A. Heering, A. Karneyeu, M. Wayne, "Studies of radiation damage to SiPMs at low temperatures", 5th International Workshop on New Photon-Detectors, Nov. 27-29, 2018, The University of Tokyo, Tokyo, Japan, <https://wwwconf.kek.jp/PD18/PD18conf/Overview.html>, ПРНД = 13.75
7. Yu. Musienko, Radiation damage of SiPMs, International conference on fast Cherenkov detectors DIRC2019, Giessen, Germany, 11-13 September, 2019  
<https://indico.gsi.de/event/8577/>, ПРНД = 25
8. A. Heering, Yu. Musienko, M. Wayne, A. Karneyeu, Yu. Andreev, SiPMs characteristics after very high Radiation at low Temperature for the SLHC CMS PHASE II upgrade, SiPM workshop: from fundamental research to industrial applications, Bari, Italy, 2-4 October 2019  
<https://agenda.infn.it/event/17801/>, ПРНД = 3

**Суммарный ПРНД по докладам = 105**

#### **Статьи CMS:**

1. Sirunyan A.M. et al. (CMS Collaboration). Azimuthal anisotropy of charged particles with transverse momentum up to 100 GeV/ c in PbPb collisions at  $\sqrt{s}_{NN}=5.02$  TeV // Phys.Lett.B776: 195--216, 2018. ПРНД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$
2. Sirunyan A.M. et al. (CMS Collaboration). Measurements of  $t\bar{t}$  cross sections in association with  $b$  jets and inclusive jets and their ratio using dilepton final states in pp collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B776: 355-378, 2018. ПРНД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$
3. Sirunyan A.M. et al. (CMS Collaboration). Suppression of excited Upsilon states relative to the ground state in PbPb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV // Phys.Rev.Lett. 120: 142301, 2018. ПРНД =  $9,227 \cdot 30 \cdot 0,007 = 1,94$
4. Sirunyan A.M. et al. (CMS Collaboration). Search for Higgs boson pair production in events with two bottom quarks and two tau leptons in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B778: 101-127, 2018. ПРНД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$
5. Sirunyan A.M. et al. (CMS Collaboration). Search for natural supersymmetry in events with top quark pairs and photons in pp collisions at  $\sqrt{s} = 8$  TeV // JHEP 1803: 167, 2018. ПРНД =  $5,833 \cdot 30 \cdot 0,007 = 1,22$
6. Sirunyan A.M. et al. (CMS Collaboration). Search for the pair production of third-generation squarks with two-body decays to a bottom or charm quark and a neutralino in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B778: 263-291, 2018. ПРНД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$

7. Sirunyan A.M. et al. (CMS Collaboration). Observation of the Higgs boson decay to a pair of tau leptons // Phys.Lett.B779: 283-316, 2018.  $\text{IPPHД} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
8. Sirunyan A.M. et al. (CMS Collaboration). Search for single production of a vector-like T quark decaying to a Z boson and a top quark in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B781: 574-600, 2018.  $\text{IPPHД} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
9. Sirunyan A.M. et al. (CMS Collaboration). Constraints on the chiral magnetic effect using charge-dependent azimuthal correlations in pPb and PbPb collisions at the LHC // Phys.Rev.C97: 044912, 2018.  $\text{IPPHД} = 3,132 \cdot 30 \cdot 0,007 = 0,66$
10. Sirunyan A.M. et al. (CMS Collaboration). Search for vector-like light-flavor quark partners in proton-proton collisions at  $\sqrt{s}=8$  TeV // Phys.Rev.D97: 072008, 2018.  $\text{IPPHД} = 4,368 \cdot 30 \cdot 0,007 = 0,92$
11. Sirunyan A.M. et al. (CMS Collaboration). Measurement of prompt  $D^0$  meson azimuthal anisotropy in PbPb collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  TeV // Phys.Rev.Lett. 120: 202301, 2018.  $\text{IPPHД} = 9,227 \cdot 30 \cdot 0,007 = 1,94$
12. Sirunyan A.M. et al. (CMS Collaboration). Search for resonant and nonresonant Higgs boson pair production in the bblnu final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV // JHEP 1801: 054, 2018.  $\text{IPPHД} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
13. Sirunyan A.M. et al. (CMS Collaboration). Nuclear modification factor of  $D^0$  mesons in PbPb collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  TeV // Phys.Lett.B782: 474-496, 2018.  $\text{IPPHД} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
14. Sirunyan A.M. et al. (CMS Collaboration). Search for massive resonances decaying into WW, WZ, ZZ, qW, and qZ with dijet final states at  $\sqrt{s} = 13$  TeV // Phys.Rev.D97: 072006, 2018.  $\text{IPPHД} = 4,368 \cdot 30 \cdot 0,007 = 0,92$
15. Sirunyan A.M. et al. (CMS Collaboration). Measurement of normalized differential t-tbar cross sections in the dilepton channel from pp collisions at  $\sqrt{s} = 13$  TeV // JHEP 1804: 060, 2018.  $\text{IPPHД} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
16. Sirunyan A.M. et al. (CMS Collaboration). Search for heavy resonances decaying to a top quark and a bottom quark in the lepton+jets final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B777: 39-63, 2018.  $\text{IPPHД} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
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18. Sirunyan A.M. et al. (CMS Collaboration). Search for supersymmetry with Higgs boson to diphoton decays using the razor variables at  $\sqrt{s} = 13$  TeV // Phys.Lett.B779: 166-190, 2018.  $\text{IPPHД} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
19. Sirunyan A.M. et al. (CMS Collaboration). Search for higgsino pair production in pp collisions at  $\sqrt{s} = 13$  TeV in final states with large missing transverse momentum and two Higgs bosons decaying via  $H \rightarrow b\bar{b}$  // Phys.Rev.D97: 032007, 2018.  $\text{IPPHД} = 4,368 \cdot 30 \cdot 0,007 = 0,92$
20. Morad Aaboud et al. (ATLAS and CMS Collaborations). Combination of inclusive and differential  $t\bar{t}$  charge asymmetry measurements using ATLAS and CMS data at  $\sqrt{s} = 7$  and 8 TeV // JHEP 1804: 033, 2018.  $\text{IPPHД} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
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25. Sirunyan A.M. et al. (CMS Collaboration). Measurements of the  $pp \rightarrow ZZ$  production cross section and the  $Z \rightarrow 4\ell$  branching fraction, and constraints on anomalous triple gauge couplings at  $\sqrt{s} = 13$  TeV // Eur.Phys.J.C78: 165, 2018.  $\text{IPHD} = 4,843 \cdot 30 \cdot 0,007 = 1,02$
26. Sirunyan A.M. et al. (CMS Collaboration). Search for new phenomena in final states with two opposite-charge, same-flavor leptons, jets, and missing transverse momentum in pp collisions at  $\sqrt{s} = 13$  TeV // JHEP 1803: 076, 2018.  $\text{IPHD} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
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28. Sirunyan A.M. et al. (CMS Collaboration). Search for supersymmetry in events with one lepton and multiple jets exploiting the angular correlation between the lepton and the missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B780: 384-409, 2018.  $\text{IPHD} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
29. Sirunyan A.M. et al. (CMS Collaboration). Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at  $\sqrt{s} = 13$  TeV // JHEP 1801: 097, 2018.  $\text{IPHD} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
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31. Sirunyan A.M. et al. (CMS Collaboration). Study of dijet events with a large rapidity gap between the two leading jets in pp collisions at  $\sqrt{s} = 7$  TeV // Eur.Phys.J.C78: no.3,242, 2018.  $\text{IPHD} = 4,843 \cdot 30 \cdot 0,007 = 1,02$
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33. Sirunyan A.M. et al. (CMS Collaboration). Search for a massive resonance decaying to a pair of Higgs bosons in the four b quark final state in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B781: 244-269, 2018.  $\text{IPHD} = 4,162 \cdot 30 \cdot 0,007 = 0,87$
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35. Sirunyan A.M. et al. (CMS Collaboration). Measurement of differential cross sections in the  $\phi^*$  variable for inclusive Z boson production in pp collisions at  $\sqrt{s} = 8$  TeV // JHEP 1803: 172, 2018.  $\text{IPHD} = 5,833 \cdot 30 \cdot 0,007 = 1,22$
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38. Sirunyan A.M. et al. (CMS Collaboration). Pseudorapidity distributions of charged hadrons in proton-lead collisions at  $\sqrt{s_{\text{NN}}} = 5.02$  and 8.16 TeV // JHEP 1801: 045, 2018. ПPHД =  $5,833 \cdot 30 \cdot 0,007 = 1,22$
39. Sirunyan A.M. et al. (CMS Collaboration). Search for standard model production of four top quarks with same-sign and multilepton final states in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Eur.Phys.J.C78: no.2, 140, 2018. ПPHД =  $4,843 \cdot 30 \cdot 0,007 = 1,02$
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43. Sirunyan A.M. et al. (CMS Collaboration). Search for top squarks and dark matter particles in opposite-charge dilepton final states at  $\sqrt{s} = 13$  TeV // Phys.Rev.D97: 032009, 2018. ПPHД =  $4,368 \cdot 30 \cdot 0,007 = 0,92$
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51. Sirunyan A.M. et al. (CMS Collaboration). Search for gauge-mediated supersymmetry in events with at least one photon and missing transverse momentum in pp collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B780: 118-143, 2018. ПPHД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$
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69. Sirunyan A.M. et al. (CMS Collaboration). Search for decays of stopped exotic long-lived particles produced in proton-proton collisions at  $\sqrt{s} = 13$  TeV // JHEP 1805: 127, 2018. ПPHД =  $5,833 \cdot 30 \cdot 0,007 = 1,22$
70. Sirunyan A.M. et al. (CMS Collaboration). Search for new physics in events with two soft oppositely charged leptons and missing transverse momentum in proton-proton collisions at  $\sqrt{s} = 13$  TeV // Phys.Lett.B782: 440-467, 2018. ПPHД =  $4,162 \cdot 30 \cdot 0,007 = 0,87$
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**Суммарный ПРНД по статьям/препринтам CMS = 295,57**

**Суммарный ПРНД (за 2017-2018 гг.) = 445,97**