

References

- [1] F. Müller, O. Javakhishvili, D. Shergelashvili, I. Keshelashvili, D. Mchedlishvili, ..., G. Macharashvili, N. Lomidze, M. Tabidze, *et al.* "A New Beam Polarimeter at COSY to Search for Electric Dipole Moments of Charged Particles," [arXiv:2010.13536 [physics.ins-det]].
- [2] T. Wagner, ..., D. Shergelashvili, I. Keshelashvili, D. Mchedlishvili, ..., G. Macharashvili, N. Lomidze, M. Tabidze, *et al.* [JEDI], "Beam-based alignment at the Cooler Synchrotron COSY as a prerequisite for an electric dipole moment measurement," [arXiv:2009.02058 [physics.acc-ph]].
- [3] C. Fritzsche, S. Barsov, I. Burmeister, S. Dymov, R. Gebel, M. Hartmann, A. Kacharava, ..., D. Mchedlishvili, *et al.* "Total and differential cross sections of the $\mathbf{dp} \rightarrow \mathbf{He} \eta$ reaction at excess energies between 1 and 15 MeV," Phys. Rev. C **102**, 044004 (2020) doi:10.1103/PhysRevC.102.044004 [arXiv:2007.06274 [nucl-ex]].
- [4] O. Javakhishvili, I. Keshelashvili, D. Mchedlishvili, *et al.* [JEDI], "A storage ring EDM polarimeter," J. Phys. Conf. Ser. **1561**, no.1, 012011 (2020) doi:10.1088/1742-6596/1561/1/012011
- [5] I. Keshelashvili, ..., D. Mchedlishvili, *et al.* [Jedi], "Development of a Dedicated Precision Polarimeter for Charged Particle EDM searches at COSY," PoS **PSTP2019**, 006 (2020) doi:10.22323/1.379.0006
- [6] F. Müller, M. Zurek, Z. Bagdasarian, ..., I. Keshelashvili, D. Mchedlishvili, ..., G. Macharashvili, N. Lomidze, M. Tabidze, *et al.* "Measurement of deuteron carbon vector analyzing powers in the kinetic energy range 170-380 MeV," Eur. Phys. J. A **56**, no.8, 211 (2020) doi:10.1140/epja/s10050-020-00215-8 [arXiv:2003.07566 [nucl-ex]].
- [7] S. Karanth, E. Stephenson, A. Wronska, ..., I. Keshelashvili, D. Mchedlishvili, *et al.* "Influence of electron cooling on the polarization lifetime of a horizontally polarized storage ring beam," Nucl. Instrum. Meth. A **987**, 164797 (2021) doi:10.1016/j.nima.2020.164797 [arXiv:2002.06919 [physics.acc-ph]].
- [8] O. Javakhishvili, D. Mchedlishvili, *et al.* [JEDI], "Development of a multi-channel power supply for silicon photomultipliers reading out inorganic scintillators," doi:10.1016/j.nima.2020.164337 [arXiv:2002.01700 [physics.ins-det]].
- [9] M. Gogberashvili and A. Gurchumelia, "Split Octonions and Triality in (4+4)-Space," [arXiv:2012.02255 [math-ph]].
- [10] B. Kapanadze, A. Gurchumelia, D. Dorner, S. Vercellone, P. Romano, P. Hughes, M. Aller, H. Aller and O. Kharshiladze, "Swift Observations of Mrk 421 in Selected Epochs. III. Extreme X-Ray Timing/Spectral Properties and Multiwavelength Lognormality during 2015 December–2018 April," Astrophys. J. Suppl. **247**, no.1, 27 (2020) doi:10.3847/1538-4365/ab6322 [arXiv:2004.00676 [astro-ph.GA]].

- [11] R. Beradze and M. Gogberashvili, "Can the quasi-molecular mechanism of recombination decrease the Hubble tension?," [arXiv:2001.05874 [astro-ph.CO]].
- [12] R. Beradze, M. Gogberashvili and A. S. Sakharov, "Binary Neutron Star Mergers with Missing Electromagnetic Counterparts as Manifestations of Mirror World," Phys. Lett. B **804**, 135402 (2020) doi:10.1016/j.physletb.2020.135402 [arXiv:1910.04567 [astro-ph.HE]].
- [13] B. Belfatto, R. Beradze and Z. Berezhiani, "The CKM unitarity problem: A trace of new physics at the TeV scale?," Eur. Phys. J. C **80**, no.2, 149 (2020) doi:10.1140/epjc/s10052-020-7691-6 [arXiv:1906.02714 [hep-ph]].
- [14] G. Jorjadze and S. Theisen, "On the S-matrix of Liouville theory," [arXiv:2011.06876 [hep-th]].
- [15] G. Jorjadze and S. Theisen, "Canonical maps and integrability in $T\bar{T}$ deformed 2d CFTs," [arXiv:2001.03563 [hep-th]].
- [16] T. P. Nadareishvili and A. Khelashvili, "Some Quantum Mechanical Relations in case of Singular Operators," PoS **EPS-HEP2019** (2020), 542 doi:10.22323/1.364.0542
- [17] A. Khelashvili and T. Nadareishvili, "Hypervirial and Ehrenfest theorems in spherical coordinates: systematic approach," Phys. Part. Nucl. **51** (2020) no.1, 107-121 doi:10.1134/S1063779620010049 [arXiv:1806.01268 [quant-ph]].
- [18] Z. Tavartkiladze, "Higgs-Squark-Slepton Inflation from the MSSM," Phys. Rev. D **101** (2020) no.5, 055027 doi:10.1103/PhysRevD.101.055027 [arXiv:1912.07694 [hep-ph]].
- [19] S. Aiello, ..., G. Papalashvili, R. Shanidze, ..., *et al.* [KM3NeT], "Deep-sea deployment of the KM3NeT neutrino telescope detection units by self-unrolling," JINST **15**, no.11, P11027 (2020) doi:10.1088/1748-0221/15/11/P11027 [arXiv:2007.16090 [astro-ph.IM]].
- [20] S. Aiello, ..., G. Papalashvili, R. Shanidze, ..., *et al.* [KM3NeT], "Deep-sea deployment of the KM3NeT neutrino telescope detection units by self-unrolling," JINST **15**, no.11, P11027 (2020) doi:10.1088/1748-0221/15/11/P11027 [arXiv:2007.16090 [astro-ph.IM]].
- [21] S. Aiello, ..., G. Papalashvili, R. Shanidze, ..., *et al.* [KM3NeT], "gSeaGen: The KM3NeT GENIE-based code for neutrino telescopes," Comput. Phys. Commun. **256**, 107477 (2020) doi:10.1016/j.cpc.2020.107477 [arXiv:2003.14040 [astro-ph.IM]].
- [22] M. Ageron, ..., G. Papalashvili, R. Shanidze, ..., *et al.* [KM3NeT], "Dependence of atmospheric muon flux on seawater depth measured with the first KM3NeT detection units: The KM3NeT Collaboration," Eur. Phys. J. C **80**, no.2, 99 (2020) doi:10.1140/epjc/s10052-020-7629-z [arXiv:1906.02704 [physics.ins-det]].
- [23] S. Aiello, ..., G. Papalashvili, R. Shanidze, ..., *et al.* [KM3NeT], "The Control Unit of the KM3NeT Data Acquisition System," Comput. Phys. Commun. **256**, 107433 (2020) doi:10.1016/j.cpc.2020.107433 [arXiv:1910.00112 [astro-ph.IM]].
- [24] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Exclusive dimuon production in ultraperipheral Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ATLAS," [arXiv:2011.12211 [nucl-ex]].

- [25] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for trilepton resonances from chargino and neutralino pair production in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," [arXiv:2011.10543 [hep-ex]].
- [26] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for dark matter produced in association with a single top quark in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," [arXiv:2011.09308 [hep-ex]].
- [27] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of Higgs Bosons Decaying to Bottom Quarks from Vector Boson Fusion Production with the ATLAS Experiment at $\sqrt{s} = 13$ TeV," [arXiv:2011.08280 [hep-ex]].
- [28] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for displaced leptons in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," [arXiv:2011.07812 [hep-ex]].
- [29] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for a heavy Higgs boson decaying into a Z boson and another heavy Higgs boson in the $\ell\ell b\bar{b}$ and $\ell\ell WW$ final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2011.05639 [hep-ex]].
- [30] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for dark matter in association with an energetic photon in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2011.05259 [hep-ex]].
- [31] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for Higgs boson production in association with a high-energy photon via vector-boson fusion with decay into bottom quark pairs at $\sqrt{s}=13$ TeV with the ATLAS detector," [arXiv:2010.13651 [hep-ex]].
- [32] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for dark matter produced in association with a dark Higgs boson decaying into $W^{\pm}W^{\mp}$ or ZZ in fully hadronic final states from $\sqrt{s} = 13$ TeV pp collisions recorded with the ATLAS detector," [arXiv:2010.06548 [hep-ex]].
- [33] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Observation of photon-induced W^+W^- production in pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector," [arXiv:2010.04019 [hep-ex]].
- [34] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Charged-lepton-flavour violation at the LHC: a search for $Z \rightarrow e\tau/\mu\tau$ decays with the ATLAS detector," [arXiv:2010.02566 [hep-ex]].
- [35] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for pair production of scalar leptoquarks decaying into first- or second-generation leptons and top quarks in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2010.02098 [hep-ex]].
- [36] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for phenomena beyond the Standard Model in events with large b -jet multiplicity using the ATLAS detector at the LHC," [arXiv:2010.01015 [hep-ex]].
- [37] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Observation and measurement of forward proton scattering in association with lepton pairs produced via the photon fusion mechanism at ATLAS," [arXiv:2009.14537 [hep-ex]].

- [38] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for heavy resonances decaying into a pair of Z bosons in the $\ell^+\ell^-\ell'^+\ell'^-$ and $\ell^+\ell^-\nu\bar{\nu}$ final states using 139 fb^{-1} of proton-proton collisions at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector," [arXiv:2009.14791 [hep-ex]].
- [39] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Optimisation of large-radius jet reconstruction for the ATLAS detector in 13 TeV proton-proton collisions," [arXiv:2009.04986 [hep-ex]].
- [40] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Medium-induced modification of Z -tagged charged particle yields in Pb+Pb collisions at 5.02 TeV with the ATLAS detector," [arXiv:2008.09811 [nucl-ex]].
- [41] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for type-III seesaw heavy leptons in dilepton final states in pp collisions at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector," [arXiv:2008.07949 [hep-ex]].
- [42] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for new phenomena in final states with large jet multiplicities and missing transverse momentum using $\sqrt{s} = 13\text{ TeV}$ proton-proton collisions recorded by ATLAS in Run 2 of the LHC," JHEP **10**, 062 (2020) doi:10.1007/JHEP10(2020)062 [arXiv:2008.06032 [hep-ex]].
- [43] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for heavy resonances decaying into a photon and a hadronically decaying Higgs boson in pp collisions at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector," [arXiv:2008.05928 [hep-ex]].
- [44] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of light-by-light scattering and search for axion-like particles with 2.2 nb^{-1} of Pb+Pb data with the ATLAS detector," [arXiv:2008.05355 [hep-ex]].
- [45] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the associated production of a Higgs boson decaying into b -quarks with a vector boson at high transverse momentum in pp collisions at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector," [arXiv:2008.02508 [hep-ex]].
- [46] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Evidence for $t\bar{t}\bar{t}$ production in the multilepton final state in proton-proton collisions at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector," [arXiv:2007.14858 [hep-ex]].
- [47] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Reconstruction and identification of boosted di- τ systems in a search for Higgs boson pairs using 13 TeV proton-proton collision data in ATLAS," [arXiv:2007.14811 [hep-ex]].
- [48] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Test of the universality of τ and μ lepton couplings in W -boson decays from $t\bar{t}$ events with the ATLAS detector," [arXiv:2007.14040 [hep-ex]].
- [49] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of hadronic event shapes in multijet final states at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector," [arXiv:2007.12600 [hep-ex]].

- [50] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Operation of the ATLAS trigger system in Run 2," JINST **15**, no.10, P10004 (2020) doi:10.1088/1748-0221/15/10/P10004 [arXiv:2007.12539 [physics.ins-det]].
- [51] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "A search for the dimuon decay of the Standard Model Higgs boson with the ATLAS detector," [arXiv:2007.07830 [hep-ex]].
- [52] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Alignment of the ATLAS Inner Detector in Run-2," [arXiv:2007.07624 [hep-ex]].
- [53] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of inclusive and differential cross-sections of combined $t\bar{t}\gamma$ and $tW\gamma$ production in the $e\mu$ channel at 13 TeV with the ATLAS detector," JHEP **09**, 049 (2020) doi:10.1007/JHEP09(2020)049 [arXiv:2007.06946 [hep-ex]].
- [54] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for resonances decaying into a weak vector boson and a Higgs boson in the fully hadronic final state produced in proton–proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2007.05293 [hep-ex]].
- [55] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of WH and ZH production in the $H \rightarrow b\bar{b}$ decay channel in pp collisions at 13 TeV with the ATLAS detector," [arXiv:2007.02873 [hep-ex]].
- [56] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Jet energy scale and resolution measured in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," [arXiv:2007.02645 [hep-ex]].
- [57] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of single top-quark production in association with a W boson in the single-lepton channel at $\sqrt{s} = 8$ TeV with the ATLAS detector," [arXiv:2007.01554 [hep-ex]].
- [58] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Differential cross-section measurements for the electroweak production of dijets in association with a Z boson in proton-proton collisions at ATLAS," [arXiv:2006.15458 [hep-ex]].
- [59] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the $t\bar{t}$ production cross-section in the lepton+jets channel at $\sqrt{s} = 13$ TeV with the ATLAS experiment," Phys. Lett. B **810**, 135797 (2020) doi:10.1016/j.physletb.2020.135797 [arXiv:2006.13076 [hep-ex]].
- [60] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for new non-resonant phenomena in high-mass dilepton final states with the ATLAS detector," JHEP **11**, 005 (2020) doi:10.1007/JHEP11(2020)005 [arXiv:2006.12946 [hep-ex]].
- [61] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of top-quark pair single- and double-differential cross-sections in the all-hadronic channel in pp collisions at $\sqrt{s} = 13$ TeV using the ATLAS detector," [arXiv:2006.09274 [hep-ex]].
- [62] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for pairs of scalar leptoquarks decaying into quarks and electrons or muons in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," JHEP **10**, 112 (2020) doi:10.1007/JHEP10(2020)112 [arXiv:2006.05872 [hep-ex]].

- [63] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for top squarks in events with a Higgs or Z boson using 139 fb^{-1} of pp collision data at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector," [arXiv:2006.05880 [hep-ex]].
- [64] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for Higgs boson decays into two new low-mass spin-0 particles in the $4b$ channel with the ATLAS detector using pp collisions at $\sqrt{s} = 13 \text{ TeV}$," [arXiv:2005.12236 [hep-ex]].
- [65] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Performance of the missing transverse momentum triggers for the ATLAS detector during Run-2 data taking," JHEP **08**, 080 (2020) doi:10.1007/JHEP08(2020)080 [arXiv:2005.09554 [hep-ex]].
- [66] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "A search for the $Z\gamma$ decay mode of the Higgs boson in pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector," Phys. Lett. B **809**, 135754 (2020) doi:10.1016/j.physletb.2020.135754 [arXiv:2005.05382 [hep-ex]].
- [67] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for $t\bar{t}$ resonances in fully hadronic final states in pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector," JHEP **10**, 061 (2020) doi:10.1007/JHEP10(2020)061 [arXiv:2005.05138 [hep-ex]].
- [68] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Performance of the upgraded PreProcessor of the ATLAS Level-1 Calorimeter Trigger," JINST **15**, no.11, P11016 (2020) doi:10.1088/1748-0221/15/11/P11016 [arXiv:2005.04179 [physics.ins-det]].
- [69] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [CMS and ATLAS], "Combination of the W boson polarization measurements in top quark decays using ATLAS and CMS data at $\sqrt{s} = 8 \text{ TeV}$," JHEP **08**, no.08, 051 (2020) doi:10.1007/JHEP08(2020)051 [arXiv:2005.03799 [hep-ex]].
- [70] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Dijet resonance search with weak supervision using $\sqrt{s} = 13 \text{ TeV}$ pp collisions in the ATLAS detector," Phys. Rev. Lett. **125**, no.13, 131801 (2020) doi:10.1103/PhysRevLett.125.131801 [arXiv:2005.02983 [hep-ex]].
- [71] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for heavy diboson resonances in semileptonic final states in pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector," [arXiv:2004.14636 [hep-ex]].
- [72] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for a scalar partner of the top quark in the all-hadronic $t\bar{t}$ plus missing transverse momentum final state at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector," Eur. Phys. J. C **80**, no.8, 737 (2020) doi:10.1140/epjc/s10052-020-8102-8 [arXiv:2004.14060 [hep-ex]].
- [73] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Performance of the ATLAS muon triggers in Run 2," JINST **15**, no.09, P09015 (2020) doi:10.1088/1748-0221/15/09/p09015 [arXiv:2004.13447 [hep-ex]].
- [74] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Observation of electroweak production of two jets and a Z -boson pair with the ATLAS detector at the LHC," [arXiv:2004.10612 [hep-ex]].

- [75] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for direct production of electroweakinos in final states with missing transverse momentum and a Higgs boson decaying into photons in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **10**, 005 (2020) doi:10.1007/JHEP10(2020)005 [arXiv:2004.10894 [hep-ex]].
- [76] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "*CP* Properties of Higgs Boson Interactions with Top Quarks in the $t\bar{t}H$ and tH Processes Using $H \rightarrow \gamma\gamma$ with the ATLAS Detector," Phys. Rev. Lett. **125**, no.6, 061802 (2020) doi:10.1103/PhysRevLett.125.061802 [arXiv:2004.04545 [hep-ex]].
- [77] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of the Higgs boson inclusive and differential fiducial cross sections in the 4ℓ decay channel at $\sqrt{s} = 13$ TeV," Eur. Phys. J. C **80**, no.10, 942 (2020) doi:10.1140/epjc/s10052-020-8223-0 [arXiv:2004.03969 [hep-ex]].
- [78] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the Lund Jet Plane Using Charged Particles in 13 TeV Proton-Proton Collisions with the ATLAS Detector," Phys. Rev. Lett. **124**, no.22, 222002 (2020) doi:10.1103/PhysRevLett.124.222002 [arXiv:2004.03540 [hep-ex]].
- [79] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Higgs boson production cross-section measurements and their EFT interpretation in the 4ℓ decay channel at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **80**, no.10, 957 (2020) doi:10.1140/epjc/s10052-020-8227-9 [arXiv:2004.03447 [hep-ex]].
- [80] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for Higgs boson decays into a Z boson and a light hadronically decaying resonance using 13 TeV pp collision data from the ATLAS detector," [arXiv:2004.01678 [hep-ex]].
- [81] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for long-lived, massive particles in events with a displaced vertex and a muon with large impact parameter in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. D **102**, no.3, 032006 (2020) doi:10.1103/PhysRevD.102.032006 [arXiv:2003.11956 [hep-ex]].
- [82] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurements of the production cross-section for a Z boson in association with b -jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **07**, 044 (2020) doi:10.1007/JHEP07(2020)044 [arXiv:2003.11960 [hep-ex]].
- [83] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of azimuthal anisotropy of muons from charm and bottom hadrons in Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector," Phys. Lett. B **807**, 135595 (2020) doi:10.1016/j.physletb.2020.135595 [arXiv:2003.03565 [nucl-ex]].
- [84] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for heavy Higgs bosons decaying into two tau leptons with the ATLAS detector using pp collisions at $\sqrt{s} = 13$ TeV," Phys. Rev. Lett. **125**, no.5, 051801 (2020) doi:10.1103/PhysRevLett.125.051801 [arXiv:2002.12223 [hep-ex]].

- [85] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for dijet resonances in events with an isolated charged lepton using $\sqrt{s} = 13$ TeV proton-proton collision data collected by the ATLAS detector," JHEP **06**, 151 (2020) doi:10.1007/JHEP06(2020)151 [arXiv:2002.11325 [hep-ex]].
- [86] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Observation of the associated production of a top quark and a Z boson in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **07**, 124 (2020) doi:10.1007/JHEP07(2020)124 [arXiv:2002.07546 [hep-ex]].
- [87] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Test of CP invariance in vector-boson fusion production of the Higgs boson in the $H \rightarrow \tau\tau$ channel in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **805**, 135426 (2020) doi:10.1016/j.physletb.2020.135426 [arXiv:2002.05315 [hep-ex]].
- [88] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the CP -violating phase ϕ_s in $B_s^0 \rightarrow J/\psi\phi$ decays in ATLAS at 13 TeV," [arXiv:2001.07115 [hep-ex]].
- [89] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for the $HH \rightarrow b\bar{b}b\bar{b}$ process via vector-boson fusion production using proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **07**, 108 (2020) doi:10.1007/JHEP07(2020)108 [arXiv:2001.05178 [hep-ex]].
- [90] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Longitudinal flow decorrelations in Xe+Xe collisions at $\sqrt{s_{NN}} = 5.44$ TeV with the ATLAS detector," [arXiv:2001.04201 [nucl-ex]].
- [91] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of soft-drop jet observables in pp collisions with the ATLAS detector at $\sqrt{s} = 13$ TeV," Phys. Rev. D **101**, no.5, 052007 (2020) doi:10.1103/PhysRevD.101.052007 [arXiv:1912.09837 [hep-ex]].
- [92] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of isolated-photon plus two-jet production in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," JHEP **03**, 179 (2020) doi:10.1007/JHEP03(2020)179 [arXiv:1912.09866 [hep-ex]].
- [93] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for chargino-neutralino production with mass splittings near the electroweak scale in three-lepton final states in $\sqrt{s}=13$ TeV pp collisions with the ATLAS detector," Phys. Rev. D **101**, no.7, 072001 (2020) doi:10.1103/PhysRevD.101.072001 [arXiv:1912.08479 [hep-ex]].
- [94] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the transverse momentum distribution of Drell-Yan lepton pairs in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **80**, no.7, 616 (2020) doi:10.1140/epjc/s10052-020-8001-z [arXiv:1912.02844 [hep-ex]].
- [95] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for long-lived neutral particles produced in pp collisions at $\sqrt{s} = 13$ TeV decaying into displaced hadronic jets in the ATLAS inner detector and muon spectrometer," Phys. Rev. D **101**, no.5, 052013 (2020) doi:10.1103/PhysRevD.101.052013 [arXiv:1911.12575 [hep-ex]].

- [96] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Searches for electroweak production of supersymmetric particles with compressed mass spectra in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," *Phys. Rev. D* **101**, no.5, 052005 (2020) doi:10.1103/PhysRevD.101.052005 [arXiv:1911.12606 [hep-ex]].
- [97] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for direct stau production in events with two hadronic τ -leptons in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector," *Phys. Rev. D* **101**, no.3, 032009 (2020) doi:10.1103/PhysRevD.101.032009 [arXiv:1911.06660 [hep-ex]].
- [98] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the azimuthal anisotropy of charged-particle production in $Xe + Xe$ collisions at $\sqrt{s_{NN}} = 5.44$ TeV with the ATLAS detector," *Phys. Rev. C* **101**, no.2, 024906 (2020) doi:10.1103/PhysRevC.101.024906 [arXiv:1911.04812 [nucl-ex]].
- [99] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the $Z(\rightarrow \ell^+\ell^-)\gamma$ production cross-section in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," *JHEP* **03**, 054 (2020) doi:10.1007/JHEP03(2020)054 [arXiv:1911.04813 [hep-ex]].
- [100] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "ATLAS data quality operations and performance for 2015–2018 data-taking," *JINST* **15**, no.04, P04003 (2020) doi:10.1088/1748-0221/15/04/P04003 [arXiv:1911.04632 [physics.ins-det]].
- [101] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of differential cross sections for single diffractive dissociation in $\sqrt{s} = 8$ TeV pp collisions using the ATLAS ALFA spectrometer," *JHEP* **02**, 042 (2020) [erratum: *JHEP* **10**, 182 (2020)] doi:10.1007/JHEP02(2020)042 [arXiv:1911.00453 [hep-ex]].
- [102] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Transverse momentum and process dependent azimuthal anisotropies in $\sqrt{s_{NN}} = 8.16$ TeV $p+Pb$ collisions with the ATLAS detector," *Eur. Phys. J. C* **80**, no.1, 73 (2020) doi:10.1140/epjc/s10052-020-7624-4 [arXiv:1910.13978 [nucl-ex]].
- [103] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], " Z boson production in Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV measured by the ATLAS experiment," *Phys. Lett. B* **802**, 135262 (2020) doi:10.1016/j.physletb.2020.135262 [arXiv:1910.13396 [nucl-ex]].
- [104] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Evidence for electroweak production of two jets in association with a $Z\gamma$ pair in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," *Phys. Lett. B* **803**, 135341 (2020) doi:10.1016/j.physletb.2020.135341 [arXiv:1910.09503 [hep-ex]].
- [105] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of the $t\bar{t}$ production cross-section and lepton differential distributions in $e\mu$ dilepton events from pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," *Eur. Phys. J. C* **80**, no.6, 528 (2020) doi:10.1140/epjc/s10052-020-7907-9 [arXiv:1910.08819 [hep-ex]].
- [106] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for new resonances in mass distributions of jet pairs using 139 fb^{-1} of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," *JHEP* **03**, 145 (2020) doi:10.1007/JHEP03(2020)145 [arXiv:1910.08447 [hep-ex]].

- [107] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for squarks and gluinos in final states with jets and missing transverse momentum using 139 fb⁻¹ of $\sqrt{s} = 13$ TeV pp collision data with the ATLAS detector," PoS **EPS-HEP2019**, 605 (2020) doi:10.22323/1.364.0605 [arXiv:2010.14293 [hep-ex]].
- [108] M. Aaboud, ..., R. Shanidze, ..., *et al.* [ATLAS], "Measurement of J/ψ production in association with a W^\pm boson with pp data at 8 TeV," JHEP **01**, 095 (2020) doi:10.1007/JHEP01(2020)095 [arXiv:1909.13626 [hep-ex]].
- [109] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for direct production of electroweakinos in final states with one lepton, missing transverse momentum and a Higgs boson decaying into two b -jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Eur. Phys. J. C **80**, no.8, 691 (2020) doi:10.1140/epjc/s10052-020-8050-3 [arXiv:1909.09226 [hep-ex]].
- [110] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for the Higgs boson decays $H \rightarrow ee$ and $H \rightarrow e\mu$ in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Lett. B **801**, 135148 (2020) doi:10.1016/j.physletb.2019.135148 [arXiv:1909.10235 [hep-ex]].
- [111] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for squarks and gluinos in final states with same-sign leptons and jets using 139 fb⁻¹ of data collected with the ATLAS detector," JHEP **06**, 046 (2020) doi:10.1007/JHEP06(2020)046 [arXiv:1909.08457 [hep-ex]].
- [112] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Combined measurements of Higgs boson production and decay using up to 80 fb⁻¹ of proton-proton collision data at $\sqrt{s} = 13$ TeV collected with the ATLAS experiment," Phys. Rev. D **101**, no.1, 012002 (2020) doi:10.1103/PhysRevD.101.012002 [arXiv:1909.02845 [hep-ex]].
- [113] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Measurement of azimuthal anisotropy of muons from charm and bottom hadrons in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector," Phys. Rev. Lett. **124**, no.8, 082301 (2020) doi:10.1103/PhysRevLett.124.082301 [arXiv:1909.01650 [nucl-ex]].
- [114] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for light long-lived neutral particles produced in pp collisions at $\sqrt{s} = 13$ TeV and decaying into collimated leptons or light hadrons with the ATLAS detector," Eur. Phys. J. C **80**, no.5, 450 (2020) doi:10.1140/epjc/s10052-020-7997-4 [arXiv:1909.01246 [hep-ex]].
- [115] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Performance of electron and photon triggers in ATLAS during LHC Run 2," Eur. Phys. J. C **80**, no.1, 47 (2020) doi:10.1140/epjc/s10052-019-7500-2 [arXiv:1909.00761 [hep-ex]].
- [116] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for flavour-changing neutral currents in processes with one top quark and a photon using 81 fb⁻¹ of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS experiment," Phys. Lett. B **800**, 135082 (2020) doi:10.1016/j.physletb.2019.135082 [arXiv:1908.08461 [hep-ex]].
- [117] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], "Search for electroweak production of charginos and sleptons decaying into final states with two leptons and missing transverse

momentum in $\sqrt{s} = 13$ TeV pp collisions using the ATLAS detector,” Eur. Phys. J. C **80**, no.2, 123 (2020) doi:10.1140/epjc/s10052-019-7594-6 [arXiv:1908.08215 [hep-ex]].

- [118] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Search for non-resonant Higgs boson pair production in the $bbl\nu\nu$ final state with the ATLAS detector in pp collisions at $\sqrt{s} = 13$ TeV,” Phys. Lett. B **801**, 135145 (2020) doi:10.1016/j.physletb.2019.135145 [arXiv:1908.06765 [hep-ex]].
- [119] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Measurement of angular and momentum distributions of charged particles within and around jets in Pb+Pb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector,” Phys. Rev. C **100**, no.6, 064901 (2019) [erratum: Phys. Rev. C **101**, no.5, 059903 (2020)] doi:10.1103/PhysRevC.100.064901 [arXiv:1908.05264 [nucl-ex]].
- [120] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Search for displaced vertices of oppositely charged leptons from decays of long-lived particles in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Phys. Lett. B **801**, 135114 (2020) doi:10.1016/j.physletb.2019.135114 [arXiv:1907.10037 [hep-ex]].
- [121] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Searches for lepton-flavour-violating decays of the Higgs boson in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector,” Phys. Lett. B **800**, 135069 (2020) doi:10.1016/j.physletb.2019.135069 [arXiv:1907.06131 [hep-ex]].
- [122] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Search for heavy neutral Higgs bosons produced in association with b -quarks and decaying into b -quarks at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Phys. Rev. D **102**, no.3, 032004 (2020) doi:10.1103/PhysRevD.102.032004 [arXiv:1907.02749 [hep-ex]].
- [123] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Search for diboson resonances in hadronic final states in 139 fb^{-1} of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” JHEP **09**, 091 (2019) [erratum: JHEP **06**, 042 (2020)] doi:10.1007/JHEP09(2019)091 [arXiv:1906.08589 [hep-ex]].
- [124] M. Aaboud, ..., T. Djobava, A. Durglishvili, ..., *et al.* [ATLAS], ”Measurement of long-range two-particle azimuthal correlations in Z -boson tagged pp collisions at $\sqrt{s}=8$ and 13 TeV,” Eur. Phys. J. C **80**, no.1, 64 (2020) doi:10.1140/epjc/s10052-020-7606-6 [arXiv:1906.08290 [nucl-ex]].
- [125] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Combination of searches for Higgs boson pairs in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector,” Phys. Lett. B **800**, 135103 (2020) doi:10.1016/j.physletb.2019.135103 [arXiv:1906.02025 [hep-ex]].
- [126] G. Aad, ..., T. Djobava, A. Durglishvili, ... *et al.* [ATLAS], ”Search for Magnetic Monopoles and Stable High-Electric-Charge Objects in 13 TeV Proton-Proton Collisions with the ATLAS Detector,” Phys. Rev. Lett. **124**, no.3, 031802 (2020) doi:10.1103/PhysRevLett.124.031802 [arXiv:1905.10130 [hep-ex]].
- [127] M. Aaboud, ..., T. Djobava, A. Durglishvili, ..., *et al.* [ATLAS], ”Fluctuations of anisotropic flow in Pb+Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS detector,” JHEP **01**, 051 (2020) doi:10.1007/JHEP01(2020)051 [arXiv:1904.04808 [nucl-ex]].

- [128] M. Aaboud, ..., T. Djobava, A. Durglishvili, ..., *et al.* [ATLAS], "Measurements of top-quark pair spin correlations in the $e\mu$ channel at $\sqrt{s} = 13$ TeV using pp collisions in the ATLAS detector," *Eur. Phys. J. C* **80**, no.8, 754 (2020) doi:10.1140/epjc/s10052-020-8181-6 [arXiv:1903.07570 [hep-ex]].