Sezen Sekmen

Personal information

Address	: CERN PH-UCM, 653/1-001 1211 Geneva, Switzerland

Education

Sep 2003 - Dec 2008	**PhD**: Particle Physics, Middle East Technical University (METU) Thesis: "SUSY with Heavy Scalars at the LHC"
Sep 2001 - Sep 2003	**MSc**: Particle Physics, Middle East Technical University (METU) Thesis: "Search for Higgs boson in the decays of higher-dimensional black holes at the LHC"
Sep 1997 - Jun 2001	**BS**: Middle East Technical University (METU) Undergraduate Advanced Physics Program.

Professional experience

June 2021 - ...	Research Professor, Kyungpook National University, Physics Department
2017, 2018	Distinguished Researcher, Fermilab LHC Physics Center
Oct 2017	Habilitation in Turkey. Docent title awarded by the Inter-University Council of Turkey
Dec 2014 - ...	Postdoctoral Researcher, Kyungpook National University, via Korea CMS
Jan 2012 - Mar 2014	Postdoctoral Fellow, CERN, Physics Department
Jan 2009 - Dec 2011	Postdoctoral Fellow, Florida State University, Physics Department
Jul 2001 - Mar 2007	Head of compounding department / information systems designer BLS A.S. Bursa, Turkey

Objective and research interests:

Objective	Find physics channels and design searches at the LHC and future colliders that could lead to new physics discovery; enhance experimental reach, sensitivity and efficiency by improving detector subsystems, detector software and object reconstruction; design efficient, innovative data analysis methods and tools.
Research interests	Member of the CMS Collaboration at the LHC: new physics searches, Higgs boson measurements, fast detector simulation, hadron calorimetry, trigger design, boosted objects; interpretation of LHC new physics and Higgs results; developing analysis description languages and innovative analysis tools for the LHC; developing statistical methods for particle physics; particle physics - cosmology synergy.

Language skills

Turkish (native), English (excellent), French (intermediate), German (beginner)

Professional responsibilities:

Within the CMS Collaboration:

1. CMS SUS Hadronic/Photon Subgroup co-convener (L3) (2022-2024)
2. CMS Analysis Tools Task Force Member (2021-2022)
3. CMS Upgrade Performance Studies Group co-convener (L2) (2020-2022)
4. CMS Upgrade Performance Studies Future New Physics Subgroup co-convener (L3) (2019-2020)
5. CMS Fast Simulation Group convener (L2) (2015-2019)
6. HWW contact to the CMS Higgs Combination Group (2015-2017)
7. CMS HCAL HLT liaison (L4) (2014-2016)
8. b-tagging contact to CMS SUSY Physics Analysis Group (2013-2014)
9. CERN CMG Group data and production manager (2013-2014)
10. MC Generators contact to CMS SUSY Physics Analysis Group (2007-2010)
11. Fast Simulation contact to CMS Exotica Physics Analysis Group (2007-2008)
12. ARC (analysis review committee) member for various CMS analyses

Other responsibilities:

1. Upgrade physics session convener, LHCP2023 Conference, Belgrade, Serbia (2023)
2. Organisation committee member, ECFA Early-Career Researchers Panel (2019 - 2021)
3. Precision calculations and tools session convener, SUSY2019 Conference, Corpus Christi, US (2019)
4. Steering Committee member, LHC (Re)interpretation Forum (2016 - present)
5. Convener, Les Houches Physics at TeV Colliders Workshop 2015, BSM Session MC & Tools (2015-2016)
6. Convener, Les Houches Physics at TeV Colliders Workshop 2013, BSM Session MC & Tools (2013-2014)

Editorial or refereeing responsibilities:

1. Editor for Frontiers research topic "Innovative analysis ecosystems for HEP data" under Big Data and AI in High Energy Physics (2020 - present)
2. Referee for Physical Review D
3. Referee for International Journal of Modern Physics A

Computing skills

Software development:

- CMSSW Fast Simulation: Framework development, calorimetry shower simulation (parametrized and recently ML-based), tracking, particle propagation
- TheNtupleMaker (with H. B. Prosper): Automated ntupling and analysis tool for CMS and phenomenologists.
- CutLang (with G. Unel): Runtime interpreter for a domain-specific analysis description languge
- RGS (Random Grid Search) (with H. B. Prosper): Tool for optimizing object and event selections in HEP analyses

Language development:

- ADL: A domain-specific analysis description language for HEP analyses

Languages used: C/C++, Fortran, Python, Mathematica, bash/tcsh scripting, HTML

Organized events

International workshops:

1. "(Re)interpretation of the LHC results for new physics", CERN (12-15 Dec 2022)
2. "Analysis Description Language Tutorial & Hackathon", KNU, Korea (21-22 Nov 2022)
3. "Analysis Description Languages for the LHC", Fermilab LPC, USA (6-8 May 2019)
4. "(Re)interpreting LHC new physics search results: tools and methods", Fermilab LPC, USA (16-18 October 2017)
5. "CMS Fast Simulation Days", Fermilab LPC, USA (13-14 February 2017)
6. "Les Houches Analysis Description Accord Workshop". CERN (16-18 Nov 2016)
7. "(Re)interpreting the results of new physics searches at the LHC" (LPCC (LHC Physics Center at CERN) workshop), CERN, Switzerland (15-17 June 2016)
8. "CMS Fast Simulation Days", CERN, Switzerland (15-16 February 2016)
9. "Non-Conventional Searches at the LHC", IBS-CTPU, Korea (14-18 December 2015)
10. "Likelihoods for LHC Searches" (LPCC (LHC Physics Center at CERN) workshop), CERN, Switzerland (21-23 January 2013)
11. "Fast Simulators for the LHC" (LPCC (LHC Physics Center at CERN) workshop), CERN, Switzerland (11-12 June 2012)
12. Numerous CMS meetings

Training for physicists:

1. Co-organizer of the weekly "LPC Distinguished Researchers Office Hours" (for LPC students and postdocs), Fermilab LPC (2017) – co-organizer
2. Facilitator in various CMS Data Analysis Schools and Fermilab LPC Hands-on Advanced Tutorial Sessions (HATS)
3. Co-organizer and lecturer, "School of Computing and Applications in Accelerator and Particle Physics", Istanbul University, Istanbul, Turkey (1-8 February 2020)
4. Co-organizer and lecturer, "School of Computing and Applications in Accelerator and Particle Physics", Anadolu University, Eskisehir, Turkey (1-8 February 2015)
5. Lecturer in the series of "International Summer School and Conference on High Energy Physics: SM and Beyond", Turkey (2010-2012)

Student supervision

- PhD, ongoing: Changgi Huh, Junghyun Lee (Kyungpook Nat. U.), Gamze Sokmen (METU), Fatma Boran, Ufuk Guney Tok (Cukuruva U.)
- PhD, graduated: Lukas Vanelderen, Nadja Strobbe (Ghent U.), Sangil Pak (Kyungpook Nat. U.)
- MSc, graduated: Nadja Strobbe (Ghent U.), Ryonghae Ye (Kyungpook Nat. U.)
- CERN summer students: Gregorios Patellis, Yasaman Fereydooni, Lennaert Bel, Anna-Monica Toon, Arpon Paul, Alevee Aziz

Outreach

1. Coordinator of the CERN Turkish Teachers Program (10 programs, 2014 - present)
2. ART@CMS 2015, science partner to photographer Bree Corn for the project "Passionate About".
3. Acted in the short movie "Le cache-cache des particules" by Marion Viguier.
4. Official CERN guide and conferencier.
5. Author of the popular science book "Particle Physics: The Adventure of Discovering the Smallest" (in Turkish), METU Developement Association Press, Science and Society Series (February 2007).
6. Numerous public lectures.

Publications

CMS publications in refereed journals where I am a primary author or made significant contribution:

1. X. Cid Vidal *et al.*, "Report from Working Group 3: Beyond the Standard Model physics at the HL-LHC and HE-LHC", CERN Yellow Rep. Monogr. **7** (2019), 585-865, arXiv:1812.07831 [hep-ph].
2. CMS Collaboration,"Inclusive search for supersymmetry in pp collisions at $\sqrt{s} = 13$ TeV using razor variables and boosted object identification in zero and one lepton final states', JHEP **1903**, 031 (2019), arXiv:1812.06302 [hep-ex], CMS-PAS-SUS-16-017.
3. CMS Collaboration, "Search for Higgs boson off-shell production in proton-proton collisions at 7 and 8 TeV and derivation of constraints on its total decay width", JHEP **1609** (2016) 051, arXiv:1605.02329 [hep-ex], CMS HIG-14-032.
4. CMS Collaboration, "Search for supersymmetry in pp collisions at $\sqrt{s} = 8$ TeV in final states with boosted W bosons and b jets using razor variables", Phys. Rev. D **93** (2016) no.9, 092009, arXiv:1602.02917 [hep-ex], CMS SUS-14-007.
5. CMS Collaboration, "Phenomenological MSSM interpretation of CMS searches in pp collisions at $\sqrt{s} = 7$ and 8 TeV", JHEP **10** (2016) 129, arXiv:1606.03577 [hep-ex], CMS SUS-15-010.
6. CMS Collaboration, "Search for supersymmetry in events with b-quark jets and missing transverse energy in pp collisions at 7 TeV", Phys. Rev. D **86** (2012) 072010, arXiv:1208.4859 [hep-ex].
7. CMS Collaboration, "CMS Physics Technical Design Report, Volume II: Physics Performance", CERN/LHCC/2006-021, J. Phys. G: Nucl. Part. Phys. 34 (2007) 995.

Publication counts in refereed journals with experimental collaborations:

- Co-author of ∼1000 publications with the CMS Collaboration
  (SPIRES search: find author sekmen and collaboration CMS)
- Co-author of 3 publications with the ILC Collaboration
  (SPIRES search: find author sekmen and collaboration ILC)

Other publications in refereed journals:

1. K. Cranmer, S. Kraml, H. B. Prosper, *et al.*, "Publishing statistical models: Getting the most out of particle physics experiments," SciPost Phys. **12** (2022) no.1, 037, arXiv:2109.04981 [hep-ph].
2. G. Unel, S. Sekmen *et al.*, "CutLang V2: towards a unified Analysis Description Language", Front. Big Data 4:659986, 2021, arXiv:2101.09031 [hep-ph].
3. A. Adiguzel *et al.*, "CutLang as an Analysis Description Language for Introducing Students to Analyses in Particle Physics", Eur.J.Phys. 42 (2021) 035802, arXiv:2008.12034 [hep-ph].
4. A. Paul, S. Sekmen, G. Unel, "Down type iso-singlet quarks at the HL-LHC and FCC-hh", Eur.Phys.J.C 81 (2021) 3, 214, arXiv:2006.10149.
5. W. Abdallah *et al.*, [LHC Reinterpretation Forum], "Reinterpretation of LHC Results for New Physics: Status and Recommendations after Run 2", SciPost Phys. 9, 022 (2020), arXiv:2003.07868 [hep-ph] (editor).
6. G. Belanger, N. Desai, A. Goudelis, J. Harz, A. Lessa, J. No, A. Pukhov, S. Sekmen, D. Sengupta, B. Zaldivar and J. Zurita, "LHC-friendly minimal freeze-in models", JHEP **02** (2019), 186 arXiv:1811.05478 [hep-ph].
7. S. Sekmen and G. Ünel, "CutLang: A Particle Physics Analysis Description Language and Runtime Interpreter", Comput. Phys. Commun. **233**, 215 (2018), arXiv:1801.05727 [hep-ph].

8. J. Albrecht *et al.* [HEP Software Foundation], "A Roadmap for HEP Software and Computing R&D for the 2020s", Comput. Softw. Big Sci. **3** (2019) no.1, 7 arXiv:1712.06982 [physics.comp-ph].

9. P. C. Bhat, H. B. Prosper, S. Sekmen and C. Stewart,"Optimizing Event Selection with the Random Grid Search", Comput. Phys. Commun. **228**, 245 (2018), arXiv:1706.09907 [hep-ph].

10. K. De Causmaecker, B. Fuks, B. Herrmann, F. Mahmoudi, B. O'Leary, W. Porod, S. Sekmen and N. Strobbe, "General squark flavour mixing: constraints, phenomenology and benchmarks', JHEP **1511** (2015) 125, arXiv:1509.05414 [hep-ph].

11. M. Carena, J. Lykken, S. Sekmen, N. R. Shah and C. E. M. Wagner, "The pMSSM Interpretation of LHC Results Using Rernormalization Group Invariants", Phys. Rev. D **86** (2012) 075025, arXiv:1205.5903 [hep-ph].

12. A. Azatov, O. Bondu, A. Falkowski, M. Felcini, S. Gascon-Shotkin, D. K. Ghosh, G. Moreau and S. Sekmen, "Higgs boson production via vector-like top-partner decays: Diphoton or multilepton plus multijets channels at the LHC", Phys. Rev. D **85** (2012) 115022, arXiv:1204.0455 [hep-ph].

13. S. Kraml, B. C. Allanach, M. Mangano, H. B. Prosper, S. Sekmen *et al.*, "Searches for New Physics: Les Houches Recommendations for the Presentation of LHC Results", Eur. Phys. J. C **72** (2012) 1976, arXiv:1203.2489 [hep-ph].

14. S. Sekmen, S. Kraml, J. Lykken, F. Moortgat, S. Padhi, L. Pape, M. Pierini, H. B. Prosper and M. Spiropulu, "Interpreting LHC SUSY searches in the phenomenological MSSM", JHEP **1202**, 075 (2012), arXiv:1109.5119 [hep-ph].

15. H. Baer, S. Kraml, A. Lessa, S. Sekmen, "Thermal leptogenesis and the gravitino problem in the Asaka-Yanagida axion/axino dark matter scenario", JCAP **1104** (2011) 039, arXiv:1012.3769 [hep-ph].

16. H. Baer, S. Kraml, A. Lessa, S. Sekmen, "Reconciling thermal leptogenesis with the gravitino problem in SUSY models with mixed axion/axino dark matter", JCAP **1011** (2010) 040, arXiv:1009.2959 [hep-ph].

17. H. Baer, S. Kraml, A. Lessa, S. Sekmen, X. Tata, "Effective Supersymmetry at the LHC", JHEP **1010** (2010) 018, arXiv:1007.3897 [hep-ph].

18. H. Baer, S. Kraml, A. Lessa, S. Sekmen, "Testing Yukawa-unified SUSY during year 1 of LHC: the role of multiple b-jets, dileptons and missing E_T", JHEP **1002** (2010) 055, arXiv:0911.4739 [hep-ph].

19. H. Baer, S. Kraml, A. Lessa, S. Sekmen, H. Summy. "Beyond the Higgs boson at the Tevatron: Detecting gluinos from Yukawa-unified SUSY", Phys.Lett. **B685** (2010) 72-78, arXiv:0910.2988 [hep-ph].

20. H. Baer, S. Kraml, S. Sekmen, "Is 'just-so' Higgs splitting needed for t - b - tau Yukawa unified SUSY GUTs?", JHEP **0909** (2009) 005, arXiv:0908.0134 [hep-ph].

21. H. Baer, M. Haider, S. Kraml, S. Sekmen, H. Summy, "Cosmological consequences of Yukawa-unified SUSY models with mixed axion/axino cold and warm dark matter", JCAP **0902** (2009) 002, arXiv:0812.2693 [hep-ph].

22. H. Baer, S. Kraml, S. Sekmen, H. Summy, "Prospects for Yukawa Unified SO(10) SUSY GUTs at the CERN LHC", JHEP **0810** (2008) 079, arXiv:0809.0710 [hep-ph].

23. H. Baer, S. Kraml, S. Sekmen, H. Summy, "Dark matter allowed scenarios for Yukawa-unified SO(10) SUSY GUTs", JHEP **0803** (2008) 056, arXiv:0801.1831 [hep-ph].

24. S. Sekmen, M. T. Zeyrek, "Observing higher-dimensional black holes at the LHC", Eur. Phys J. **C39** (2005) 503-509.

Selected non-journal public CMS results where I am primary author or made significant contribution:

1. ATLAS and CMS Collaborations, "Snowmass White Paper Contribution: Physics with the Phase-2 ATLAS and CMS Detectors", CMS-PAS-FTR-22-001 (main editor).
2. CMS Collaboration, "Search for leptophobic Z' resonances decaying to charginos in the dilepton plus missing transverse momentum final state at the HL-LHC," CMS-PAS-FTR-21-011 (S. Sekmen *et. al.*.
3. CMS Collaboration, "Search for the nonresonant $t\bar{t}HH$ production in the semileptonic decay of the top pair and Higgs pair decay into b quarks at the HL-LHC," CMS-PAS-FTR-21-010 (S. Sekmen *et. al.*).
4. CMS Collaboration, "HL-LHC searches for new physics in hadronic final states with boosted W bosons or top quarks using razor variables," CMS-PAS-FTR-18-037 (S. Sekmen *et. al.*, CMS AN-2018/051)
5. CMS Collaboration, "Higgs to WW measurements with 15.2 fb^{-1} of 13 TeV proton-proton collisions", CMS-PAS-HIG-16-021.
6. CMS Collaboration, "Higgs boson decaying to WW in the leptonic final state at 13 TeV", HIG-15-003, (A. Massironi *et. al.*, CMS AN-2015/300).
7. CMS Collaboration, "pMSSM interpretation of the CMS 7 and 8 TeV results", CMS-PAS-SUS-13-020 (L. Vanelderen *et. al.*, CMS AN-2013/228).
8. CMS Collaboration, "pMSSM interpretation of the CMS 2011 5fb^{-1} results", CMS-PAS-SUS-12-030 (S. Bein *et. al.*, CMS AN-2012/276).
9. CMS Collaboration, "Status of b-tagging tools for 2011 data analysis", CMS PAS BTV-11-002 (R. Castello *et al.*, CMS AN-2011/180).
10. CMS Collaboration, "Search for New Physics in Events with b-Jets and Missing Transverse Energy in 2011", CMS PAS-SUS-11-006 (W. Ford *et al.*, CMS AN-2011/257).
11. CMS Collaboration, "Search for new physics in events with b-jets and missing transverse energy", CMS PAS SUS-10-012; B. Kreis *et al.*, CMS AN-2011/022.
12. A. Hahn, J. D. Haas, H. B. Prosper, S. Sekmen, "Response of silicon photomultipliers to minimum ionizing particles", CMS DN-2009/021.
13. CMS HCAL Collaboration, "Study of Various Photomultiplier Tubes with Muon Beams And Cerenkov Light Produced in Electron Showers", CMS NOTE-2010/003.
14. CMS Collaboration, "Search for SUSY with heavy scalars using the inclusive missing E_T+jets signature at $\sqrt{s} = 14$ TeV at the CERN LHC", CMS PAS SUS-08-007; S. Sekmen, M. Spiropulu, M. T. Zeyrek, CMS AN-2008/018.

Preprints, reports:

1. G. Stewart, *et al.*, "HSF IRIS-HEP Second Analysis Ecosystem Workshop Report" (2021), Zenodo, doi:10.5281/zenodo.7003963
2. T. Bose, A. Boveia, C. Doglioni, S. P. Griso, J. Hirschauer, E. Lipeles, Z. Liu, N. R. Shah, L. T. Wang and K. Agashe, *et al.*, "Report of the Topical Group on Physics Beyond the Standard Model at Energy Frontier for Snowmass 2021," arXiv:2209.13128 [hep-ph].
3. H. B. Prosper, S. Sekmen and G. Unel, "Analysis Description Language: A DSL for HEP Analysis," arXiv:2203.09886 [hep-ph].
4. S. Bailey, *et al.*, "Data and Analysis Preservation, Recasting, and Reinterpretation," arXiv:2203.10057 [hep-ph].

5. T. Aarrestad *et. al*, "The Dark Machines Anomaly Score Challenge: Benchmark Data and Model Independent Event Classification for the Large Hadron Collider", arXiv:2105.14027 [hep-ph]

6. A. Bethani *et. al*, "Report on the ECFA Early-Career Researchers Debate on the 2020 European Strategy Update for Particle Physics", arXiv:2002.02837 [hep-ex] (editor).

7. J. Alimena *et. al*, "Searching for Long-Lived Particles beyond the Standard Model at the Large Hadron Collider," arXiv:1903.04497 [hep-ex].

8. J. Apostolakis *et al.* [HEP Software Foundation], "HEP Software Foundation Community White Paper Working Group - Detector Simulation", arXiv:1803.04165 [physics.comp-ph].

9. F. Boudjema *et. al*, "On the presentation of the LHC Higgs results" (2013), arXiv:1307.5865.

10. M. Pierini, H. B. Prosper, S. Sekmen, M. Spiropulu, "Priors for New Physics" (2011), Conclusions from the workshops "Likelihoods for the LHC Searches" (21-23 January 2013 at CERN), "Implications of the 125 GeV Higgs Boson" (18-22 March 2013 at LPSC Grenoble), and from the 2013 Les Houches "Physics at TeV Colliders" workshop, arXiv:1108.0523.

Proceedings:

1. S. Sekmen, G. Unel, H. B. Prosper, A. Adiguzel and B. Sen, "Democratizing LHC data analysis with ADL/CutLang," PoS **EPS-HEP2021** (2022), 906, arXiv:2203.13302 [physics.ed-ph].

2. S. Sekmen *et. al.*, "Recent advances in ADL, CutLang and adl2tnm", VCHEP2021, EPJ Web Conf. 251 (2021) 03062, arXiv:2108.00857 [physics.comp-ph].

3. S. Sekmen for the CMS Collaboration, "Digging deeper into SUSY parameter space with the CMS experiment ", ICHEP2020, July 28 - August 6, 2020, Prague, Czech Republic (virtual meeting), PoS(ICHEP2020)280, arXiv:2101.10888 [hep-ex].

4. S. Sekmen *et. al.*, "Analysis Description Languages for the LHC", LHCP2020, PoS LHCP2020 (2021) 065, arXiv: 2011.01950 [hep-ph].

5. G. Brooijmans *et al.*, "Les Houches 2019 Physics at TeV Colliders: New Physics Working Group Report", arXiv:2002.12220 [hep-ph]. **5 Contributions:** "Freeze-in with large couplings at the LHC", "Long-lived signatures of conversion-driven freeze-out", "Using ADL for analysis comparison", "Comparison of recasting tools", "Model-independent signal detection: A challenge using benchmark MC data and machine learning".

6. G. Belanger, N. Desai, A. Goudelis, J. Harz, A. Lessa, J. M. No, A. Pukhov, S. Sekmen, D. Sengupta, B. Zaldivar and J. Zurita, "Confronting minimal freeze-in models with the LHC", Moriond EW 2019, 247-252, arXiv:1910.00117 [hep-ph].

7. G. Unel, S. Sekmen and A. M. Toon, "CutLang: a cut-based HEP analysis description language and runtime interpreter", ACAT2019, J. Phys. Conf. Ser. **1525** (2020) no.1, 012025, arXiv:1909.10621 [hep-ph].

8. S. Sekmen [for ATLAS and CMS], "Beyond the Standard Model Physics at the High Luminosity LHC". ICHEP2018, PoS **ICHEP2018** (2019), 283, arXiv:1902.03942 [hep-ex].

9. G. Brooijmans *et al.*,"Les Houches 2017: Physics at TeV Colliders New Physics Working Group Report", arXiv:1803.10379 [hep-ph]. **5 Contributions:** "Long-lived particles at the LHC and freeze-in dark matter", "Recasting activities at LH2017", "Analysis description for LHC result reinterpretations".

10. G. Brooijmans, C. Delaunay, A. Delgado, C. Englert, A. Falkowski, B. Fuks, S. Nikitenko, S. Sekmen *et al.*, "Les Houches 2015: Physics at TeV colliders - new physics working group report", arXiv:1605.02684 [hep-ph]. **5 Contributions:** "Introduction"; 'Search for dark matter via mono-Higgs production at the LHC"; "Falcon: Towards an ultra-fast non-parametric detector simulator"; "Towards an analysis description accord for the LHC"; "A proposal for a Les Houches Analysis Description Accord".

11. S. Sekmen, "Recent Developments in CMS Fast Simulation", 38th International Conference on High Energy Physics, published in PoS, arXiv:1701.03850.

12. W. Adam, J. Pradler, J. Schieck, C. Schwanda and W. Waltenberger, "Proceedings, LHCSki 2016 - A First Discussion of 13 TeV Results : Obergurgl, Austria, April 10-15, 2016,", arXiv:1607.01212 [hep-ph]. **Contribution:** "Low scale supersymmetry: R.I.P. or resurrection?".

13. G. Brooijmans, C. Delaunay, A. Delgado, C. Englert, A. Falkowski, B. Fuks, S. Nikitenko, S. Sekmen *et al.*, "Les Houches 2015: Physics at TeV colliders - new physics working group report", arXiv:1605.02684 [hep-ph]. **Contributions:** "Introduction"; 'Search for dark matter via mono-Higgs production at the LHC"; "Falcon: Towards an ultra-fast non-parametric detector simulator"; "Towards an analysis description accord for the LHC"; "A proposal for a Les Houches Analysis Description Accord".

14. B. Herrmann, K. De Causmaecker, B. Fuks, F. Mahmoudi, B. O'Leary, W. Porod, S. Sekmen and N. Strobbe, "An MCMC study of general squark flavour mixing in the MSSM", proceedings of the European Physical Society Conference on High Energy Physics 2015 (EPS-HEP 2015), Vienna, Austria (22-29 July 2015), arXiv:1510.01159 [hep-ph].

15. S. Sekmen for the ATLAS and CMS Collaborations, "Inclusive SUSY searches at the LHC", contribution to the proceedings of Rencontres de Moriond on QCD and High Energy Interactions, La Thuile, Italy (22-29 March 2014).

16. G. Brooijmans, R. Contino, B. Fuks, F. Moortgat, P. Richardson, S. Sekmen, A. Weiler and A. Alloul *et al.*, "Les Houches 2013: Physics at TeV Colliders: New Physics Working Group Report", arXiv:1405.1617 [hep-ph]. **Contributions:** "Indirect constraints on non-minimal flavor violating supersymmetry"; "Constraining natural supersymmetry from the LHC stop and sbottom search results at 8 TeV".

17. S. Sekmen for the CMS Collaboration, "Search for Natural SUSY with inclusive search strategies at the LHC using the CMS detector", Proceedings for The European Physical Society Conference on High Energy Physics - EPS-HEP2013, 18-24 July 2013, Stockholm, Sweden, POS(EPS-HEP-2013)311, CMS-CR-2013-282, arXiv:1311.1847 [hep-ex].

18. G. Brooijmans, B. Gripaios, F. Moortgat, J. Santiago, P. Skands, D. Albornoz Vasquez, B. C. Allanach and A. Alloul *et al.*, "Les Houches 2011: Physics at TeV Colliders New Physics Working Group Report," arXiv:1203.1488 [hep-ph].

19. S. Sekmen (on behalf of the CMS Collaboration), "Searching for Dark Matter with CMS in 2011", contribution to the proceedings of BW2011 (Balkan Workshop "Particle Physics from TeV to Plank Scale"), Donji Milanovac, Serbia (28 August - 1 September 2011), Romanian Journal of Physics, special volume 57, number 5-6, 2012.

20. S. Sekmen (on behalf of the CMS Collaboration), "Dark matter searches with the CMS experiment in 2010", contribution to the proceedings of RICAP 2011 (Rome International Conference on Astro-Particle Physics), Rome (25-27 May 2011), Nucl. Instrum. Meth. A **692** (2012) 142.

21. M. Pierini, H. Prosper, S. Sekmen, M. Spiropulu, "Model Inference with Reference Priors", contribution to the proceedings of PHYSTAT 2011 (), CERN (17-20 January 2011), arXiv:1107.2877 [hep-ph].

22. G. Brooijmans *et al.*, "New Physics at the LHC. A Les Houches Report: Physics at TeV Colliders 2009 - New Physics Working Group", contribution to the proceedings of 6th Les Houches Workshop on Physics at TeV Colliders, Les Houches, France (8-26 June 2009), arXiv:1005.1229 [hep-ph].

23. S. Sekmen, "Search for WMAP-Compatible Simple SO(10) SUSY GUTs", contribution to the proceedings of 43rd Rencontres de Moriond on Electroweak Interactions and Unified Theories, La Thuile, Italy (1-8 March 2008), arXiv:0805.2664 [hep-ph].

24. M. M. Nojiri *et al.*, "Physics Beyond the Standard Model: Supersymmetry", contribution to the proceedings of 5th Les Houches Workshop on Physics at TeV Colliders, Les Houches, France (11-29 June 2007), arXiv:0802.3672 [hep-ph].

Book:

1. S. Sekmen, "Particle Physics: The Adventure of Discovering the Smallest" (in Turkish), METU Developement Association Press, Science and Society Series (February 2007).

Other articles, reports:

1. R. Cavanaugh, J. L. Hewett, S. Kraml, M. Mangano, G. Polesello, *et. al.*, "Implications of LHC results for TeV-scale physics: new physics with missing energy signatures", submitted to the Open Symposium of the European Strategy Preparatory Group (2012).
2. Le Du *et al.*, "Detector Outline Document for the Fourth Concept Detector ("4th") at the International Linear Collider" (2006).
3. S. Sekmen, "Wisdom Generation in the Alps: A Student's Tale", CERN Courier (November 2005), article on 2005 ESHEP.