

## Asst. Prof. SERCAN ŐEN

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: C-6473-2014

Yoksis Researcher ID: 224238

### Education Information

Doctorate, Istanbul University, Institute Of Graduate Studies In Sciences, Fen Fakültesi Bölümü, Turkey 2007 - 2013

Postgraduate, Istanbul University, Institute Of Graduate Studies In Sciences, Fen Fakültesi Bölümü, Turkey 2004 - 2007

Undergraduate, Istanbul University, Institute Of Graduate Studies In Sciences, Fen Fakültesi Bölümü, Turkey 1999 - 2004

### Research Areas

Experimental Methods of Particle and Nuclear Physics, Basic Particles and Areas

### Academic Titles / Tasks

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliđi Bölümü, 2018 - Continues

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliđi Bölümü, 2015 - 2018

### Courses

Physics II, Undergraduate, 2020 - 2021

Computational Physics, Undergraduate, 2020 - 2021

Monte Carlo Simulation in High Energy Physics , Doctorate, 2020 - 2021

Data Analysis in High Energy Physics, Postgraduate, 2020 - 2021

Fizik I, Undergraduate, 2020 - 2021

Nuclear Physics, Undergraduate, 2020 - 2021

### Published journal articles indexed by SCI, SSCI, and AHCI

#### I. Luminosity determination using Z boson production at the CMS experiment

Hayrapetyan A., Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Valle A. E. D., Hussain P., et al.

European Physical Journal C, vol.84, no.1, 2024 (SCI-Expanded)

#### II. A search for decays of the Higgs boson to invisible particles in events with a top-antitop quark pair

**or a vector boson in proton-proton collisions at  $\sqrt{s}=13\text{TeV}$**

Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Hussain P., Jeitler M., et al.

European Physical Journal C, vol.83, no.10, 2023 (SCI-Expanded)

- III. **Measurement of the Dependence of the Hadron Production Fraction Ratios  $f_s/f_u$  and  $f_d/f_u$  on B Meson Kinematic Variables in Proton-Proton Collisions at Formula Presented**  
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Hussain P., Jeitler M., et al.  
Physical Review Letters, vol.131, no.12, 2023 (SCI-Expanded)
- IV. **Observation of Same-Sign WW Production from Double Parton Scattering in Proton-Proton Collisions at Formula Presented**  
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Hussain P., Jeitler M., et al.  
Physical Review Letters, vol.131, no.9, 2023 (SCI-Expanded)
- V. **Measurement of differential cross sections for the production of a Z boson in association with jets in proton-proton collisions at Formula Presented**  
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Dragicevic M., Escalante Del Valle A., Frühwirth R., Jeitler M., Krammer N., et al.  
Physical Review D, vol.108, no.5, 2023 (SCI-Expanded)
- VI. **Observation of the Rare Decay of the  $\eta$  Meson to Four Muons**  
Hayrapetyan A., Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Hussain P., et al.  
Physical Review Letters, vol.131, no.9, 2023 (SCI-Expanded)
- VII. **Search for electroweak production of charginos and neutralinos at  $s=13\text{TeV}$  in final states containing hadronic decays of WW, WZ, or WH and missing transverse momentum**  
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Frühwirth R., Jeitler M., et al.  
Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, vol.842, 2023 (SCI-Expanded)
- VIII. **Measurement of the mass dependence of the transverse momentum of lepton pairs in Drell-Yan production in proton-proton collisions at  $\sqrt{s}=13\text{TeV}$**   
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Dragicevic M., Valle A. E. D., Frühwirth R., Jeitler M., Krammer N., et al.  
European Physical Journal C, vol.83, no.7, 2023 (SCI-Expanded)
- IX. **Search for heavy resonances and quantum black holes in  $e\mu$ ,  $e\tau$ , and  $\mu\tau$  final states in proton-proton collisions at  $\sqrt{s} = 13 \text{ TeV}$**   
Tumasyan A., Adam W., Andrejkovic J., Bergauer T., Chatterjee S., Damanakis K., Dragicevic M., Escalante Del Valle A., Frühwirth R., Jeitler M., et al.  
Journal of High Energy Physics, vol.2023, no.5, 2023 (SCI-Expanded)
- X. **Electroweak stability and discovery luminosities for new physics**  
Cankoçak K., Demir D., Karahan C., ŞEN S.  
EUROPEAN PHYSICAL JOURNAL C, vol.80, no.12, 2020 (SCI-Expanded)
- XI. **Study of excited  $\Lambda(0)(b)$  states decaying to  $\Lambda(0)(b)\pi(+)\pi(-)$  in proton-proton collisions at root  $s=13\text{TeV}$**   
Sirunyan A. M., Tumasyan A., Adam W., Ambrogi F., Bergauer T., Dragicevic M., Eroo J., Del Valle A. E., Flechl M., Frühwirth R., et al.  
PHYSICS LETTERS B, vol.803, 2020 (SCI-Expanded)
- XII. **Extraction and validation of a new set of CMS pythia8 tunes from underlying-event measurements**  
Sirunyan A. M., Tumasyan A., Adam W., Ambrogi F., Asilar E., Bergauer T., Brandstetter J., Dragicevic M., Eroo J., Del Valle A. E., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.80, no.1, 2020 (SCI-Expanded)
- XIII. **Search for a charged Higgs boson decaying to charm and bottom quarks in proton-proton collisions**

**at root s=8TeV**

Sirunyan A. M., Tumasyan A., Adam W., Ambrogi F., Asilar E., Bergauer T., Brandstetter J., Brondolin E., Dragicevic M., Ero J., et al.

JOURNAL OF HIGH ENERGY PHYSICS, vol.2018, no.11, 2018 (SCI-Expanded)

- XIV. **LHC forward physics**  
Akiba K., Akbiyik M., Albrow M., Arneodo M., Avati V., Baechler J., Baillie O. V., Bartalini P., Bartels J., Baur S., et al.  
JOURNAL OF PHYSICS G-NUCLEAR AND PARTICLE PHYSICS, vol.43, no.11, 2016 (SCI-Expanded)
- XV. **Event generator tunes obtained from underlying event and multiparton scattering measurements**  
Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Asilar E., Bergauer T., Brandstetter J., Brondolin E., Dragicevic M., Ero J., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.76, no.3, 2016 (SCI-Expanded)
- XVI. **Large Rapidity Gap Method to Select Soft Diffraction Dissociation at the LHC**  
Nurse E., ŞEN S.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2016, 2016 (SCI-Expanded)
- XVII. **Production of leading charged particles and leading charged-particle jets at small transverse momenta in pp collisions at root s=8 TeV**  
Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Friedl M., Fruehwirth R., Ghete V. M., et al.  
PHYSICAL REVIEW D, vol.92, no.11, 2015 (SCI-Expanded)
- XVIII. **Measurement of diffractive dissociation cross sections in pp collisions at root s=7 TeV**  
Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Fabjan C., Friedl M., Fruehwirth R., et al.  
PHYSICAL REVIEW D, vol.92, no.1, 2015 (SCI-Expanded)
- XIX. **Combined Measurement of the Higgs Boson Mass in pp Collisions at s =7 and 8 TeV with the ATLAS and CMS Experiments**  
Aad G., Abbott B., Abdallah J., Abdinov O., Aben R., Abolins M., Abouzeid O., Abramowicz H., Abreu H., Abreu R., et al.  
Physical Review Letters, vol.114, no.19, 2015 (SCI-Expanded)
- XX. **Performance of the CMS missing transverse momentum reconstruction in pp data at root s=8 TeV**  
Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Fabjan C., Friedl M., Fruehwirth R., et al.  
JOURNAL OF INSTRUMENTATION, vol.10, 2015 (SCI-Expanded)
- XXI. **Measurement of the inelastic proton-proton cross section at root s=7 TeV**  
Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Aguilo E., Bergauer T., Dragicevic M., Ero J., Fabjan C., et al.  
PHYSICS LETTERS B, vol.722, pp.5-27, 2013 (SCI-Expanded)
- XXII. **Tests of CMS hadron forward calorimeter upgrade readout box prototype**  
Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Mossolov V., Shumeiko N., Cornelis T., Ochesanu S., Roland B., Staykova Z., et al.  
JOURNAL OF INSTRUMENTATION, vol.7, 2012 (SCI-Expanded)
- XXIII. **Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC**  
Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Aguilo E., Bergauer T., Dragicevic M., Ero J., Fabjan C., et al.  
PHYSICS LETTERS B, vol.716, no.1, pp.30-61, 2012 (SCI-Expanded)
- XXIV. **Measurement of the underlying event in the Drell-Yan process in proton-proton collisions at root s=7 TeV**  
Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Fabjan C., Friedl M., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.72, no.9, 2012 (SCI-Expanded)
- XXV. **Search for a Higgs boson in the decay channel  $H \rightarrow ZZ^{(*)} \rightarrow q(\bar{q})\ell(\bar{\ell})$  in pp collisions at root s=7 TeV**  
Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Fabjan C.,

- Friedl M., et al.  
 JOURNAL OF HIGH ENERGY PHYSICS, vol.2012, no.4, 2012 (SCI-Expanded)
- XXVI. **Combined results of searches for the standard model Higgs boson in pp collisions at root s=7 TeV**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., et al.  
 PHYSICS LETTERS B, vol.710, no.1, pp.26-48, 2012 (SCI-Expanded)
- XXVII. **Forward energy flow, central charged-particle multiplicities, and pseudorapidity gaps in W and Z boson events from pp collisions at root s=7 TeV**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., et al.  
 EUROPEAN PHYSICAL JOURNAL C, vol.72, no.1, 2012 (SCI-Expanded)
- XXVIII. **Observation of Z decays to four leptons with the CMS detector at the LHC**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Aguilo E., Bergauer T., Dragicevic M., Eroe J., Fabjan C., et al.  
 JOURNAL OF HIGH ENERGY PHYSICS, vol.2012, no.12, 2012 (SCI-Expanded)
- XXIX. **Determination of jet energy calibration and transverse momentum resolution in CMS**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Ero J., Fabjan C., Friedl M., et al.  
 JOURNAL OF INSTRUMENTATION, vol.6, 2011 (SCI-Expanded)
- XXX. **Measurement of energy flow at large pseudorapidities in pp collisions at root s=0.9 and 7 TeV**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., et al.  
 JOURNAL OF HIGH ENERGY PHYSICS, no.11, 2011 (SCI-Expanded)
- XXXI. **Dijet Azimuthal Decorrelations in pp Collisions at root s=7 TeV**  
 Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., Fruehwirth R., et al.  
 PHYSICAL REVIEW LETTERS, vol.106, no.12, 2011 (SCI-Expanded)
- XXXII. **Transverse-Momentum and Pseudorapidity Distributions of Charged Hadrons in pp Collisions at root s=7 TeV**  
 Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., Fruehwirth R., et al.  
 PHYSICAL REVIEW LETTERS, vol.105, no.2, 2010 (SCI-Expanded)
- XXXIII. **Study of various photomultiplier tubes with muon beams and Cerenkov light produced in electron showers**  
 Chatrchyan S., Khachatryan V., Sirunyan A. M., Mossolov V., Shumeiko N., De Wolf E. A., Ochesanu S., Roland B., Van Haevermaet H., Van Mechelen P., et al.  
 JOURNAL OF INSTRUMENTATION, vol.5, 2010 (SCI-Expanded)
- XXXIV. **Observation of long-range, near-side angular correlations in proton-proton collisions at the LHC**  
 Khachatryan V., Sirunyan A. M., Tumasyan A., Adam W., Bergauer T., Dragicevic M., Eroe J., Fabjan C., Friedl M., Fruehwirth R., et al.  
 JOURNAL OF HIGH ENERGY PHYSICS, vol.2010, no.9, 2010 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Extraction and validation of CMS PYTHIA8 color reconnection tunes**  
 ŞEN S.  
 Nuclear and Particle Physics Proceedings, vol.324-329, pp.3-7, 2023 (Scopus)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Dynamic MAC Scheduling in O-RAN using Federated Deep Reinforcement Learning**  
Arslan H., YILMAZ S., ŞEN S.  
2023 International Conference on Smart Applications, Communications and Networking, SmartNets 2023, İstanbul, Turkey, 25 - 27 July 2023
- II. **Evolving Lightweight Intrusion Detection Systems for RPL-Based Internet of Things**  
Deveci A., YILMAZ S., ŞEN S.  
26th International Conference on Applications of Evolutionary Computation, EvoApplications 2023, held as part of EvoStar 2023, Brno, Czech Republic, 12 - 14 April 2023, vol.13989 LNCS, pp.177-193
- III. **Recent CMS Results on Inelastic Cross-section Measurements**  
ŞEN S.  
Diffraction and Low-x 2018, 26 August - 01 September 2018
- IV. **Forward Physics at CMS**  
ŞEN S.  
ICNFP2017: 6th International Conference on new Frontiers in Physics, Kolymbari, Greece, 18 - 26 August 2017
- V. **Diffraction and Parton Processes with Forward Detectors at the LHC**  
Penzo A., Samoylenko V., Sen S.  
19th International Conference on Quantum Chromodynamics (QCD), Montpellier, France, 4 - 09 July 2016, vol.282, pp.15-19
- VI. **Low x results from CMS**  
ŞEN S.  
24th Low-x Meeting, Gyongyos, Hungary, 6 - 10 June 2016, vol.2016, pp.1-7
- VII. **Measurement of the inelastic cross section at 13 TeV**  
ŞEN S.  
Hadron Structure and QCD: from Low to High Energies, Gatchina, Russia, 27 June - 01 July 2016
- VIII. **Results from combined CMS TOTEM data**  
ŞEN S.  
24th International Workshop on Deep Inelastic Scattering and related subjects, 11 April - 15 June 2016, vol.2016, pp.1-5
- IX. **Hadron Çarpışmalarında Kırınım Süreçleri**  
ŞEN S.  
YEFIST 2016 İstanbul Yüksek Enerji Fiziği Çalıştayı, İstanbul, Turkey, 16 - 17 April 2016
- X. **Forward Physics Results from ATLAS and CMS**  
Sen S.  
7th Joint International Hadron Structure Conference, Slovakia, 30 June - 04 July 2013, vol.245, pp.132-136
- XI. **Diffraction at CMS**  
ŞEN S.  
Workshop on Forward Physics at the LHC, Reggio Calabria, Italy, 15 - 18 July 2013
- XII. **LHC forward analyses MC study**  
KARNEYEU A., ŞEN S., SKANDS P.  
Workshop on Forward Physics at the LHC, Reggio Calabria, Italy, 15 - 18 July 2013
- XIII. **Diffraction and exclusive production at CMS**  
ŞEN S.  
MPI@LHC2012, Workshop on Multi-Parton Interactions at the LHC, Cenevre, Switzerland, 3 - 07 December 2012
- XIV. **Soft Diffraction Dissociation at LHC**  
ŞEN S., Nurse E.  
The Sixth MCnet Annual School of Event Generator Physics and Techniques, Cenevre, Switzerland, 23 - 27 July 2012
- XV. **Performance of the CMS Zero Degree Calorimeter for PbPb and pp running**  
ŞEN S.

QM2011: Quark Matter 2011, 23-28 May 2011, Annecy, France, 23 - 28 May 2011

**XVI. Commissioning of CMS zero degree calorimeter using LHC beam**

Grachov O., Murray M., Wood J., Onel Y., Sen S., Yetkin T.

14th International Conference on Calorimetry in High Energy Physics (CALOR 2010), Beijing, China, 10 - 14 May 2010, vol.293

**XVII. Measurement of the energy flow in a large eta range and forward jets at LHC at sqrt s 0 9 TeV 2 36 TeV and 7 TeV**

ŞEN S.

DIS2010: XVIII International Workshop on Deep-Inelastic Scattering and Related Subjects, Floransa, Italy, 19 - 23 April 2010, vol.138

## Supported Projects

Şen S., Çakır A., Cankoçak K., Project Supported by Other Official Institutions, Yapay Zekâ Teknikleri Aracılığı ile LHC-CMS Deneyinde Top Kuark Çiftleri Hassaslık Ölçümleri, Standart Model Ötesi Yeni Parçacıkların Aranması ve HCal/HGCAL Faz-II Yenileme Çalışmaları, 2018 - 2021

BOZ M., ÇILDIROĞLU H. Ö., ŞEN S., GÜMÜŞ M. K., YILDIZ B., AĞARAS M. N., ÖZŞİMŞEK Ö. M., Project Supported by Higher Education Institutions, CERN-LHC-CMS Projesi Çerçevesinde Hacettepe-CERN Bilimsel İşbirliğine İlk Adım, 2015 - 2018

Şen S., Cankoçak K., Çakır A., Özben C. Ş., Çonka Nurdan T., Aydın G., Köse H., Boz M., Project Supported by Other Official Institutions, LHC-CMS Deneyinde Faz-II yenileme çalışmaları ve Standart Model ötesi yeni parçacıkların aranması, 2015 - 2018

Şen S., Project Supported by Higher Education Institutions, LHC CMS Dedektörü ileri bölge ışıdayıcılarının parçacık algılama verimliliği, 2016 - 2017

Şen S., Sever R., Project Supported by Other Official Institutions, CERN'deki CMS Deneyinde Standart Model Ötesi İçin Fizik Simülasyonu, Veri Analizi ve Dedektör Yenileme Çalışmaları, 2010 - 2013

Nurse E., FP6 Project, Soft Diffraction Dissociation and Underlying Events, 2010 - 2010

Şen S., Sever R., Project Supported by Other Official Institutions, CERN deki CMS Deneyinde Standart Model Ötesi İçin Fizik Simülasyonu Veri Analizi ve Dedektör Yenileme Çalışmaları, 2007 - 2010

## Scientific Research / Working Group Memberships

CERN CMS Collaboration, The European Organization for Nuclear Research, İsviçre, <https://home.cern/about>, 2008 - Continues

## Metrics

Publication: 52

Citation (WoS): 768

Citation (Scopus): 4753

H-Index (WoS): 9

H-Index (Scopus): 19

## Non Academic Experience

Hava Harp Okulu (Yeşilyurt / İSTANBUL)