

## Assoc. Prof. FATMA KOÇAK

### Personal Information

Office Phone: [+90 224 294 1710](tel:+902242941710)

Email: [fkocak@uludag.edu.tr](mailto:fkocak@uludag.edu.tr)

Web: <https://avesis.uludag.edu.tr/fkocak>

### International Researcher IDs

ScholarID: znUKtEoAAAAJ

ORCID: 0000-0002-4756-9988

ScopusID: 15843834900

Yoksis Researcher ID: 157815

### Education Information

Doctorate, Bursa Uludağ University, FEN BİLİMLERİ ENSTİTÜSÜ, Fizik (Dr), Turkey 2005 - 2010

Postgraduate, Bursa Uludağ University, FEN BİLİMLERİ ENSTİTÜSÜ, Fizik (Yl) (Tezli), Turkey 2001 - 2004

Undergraduate, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, Fizik Bölümü, Turkey 1997 - 2001

### Research Areas

Experimental High Energy Physics Studies, Particle Detectors and Calorimeters, Physics Analysis and Simulation Studies, Experimental Methods of Particle and Nuclear Physics

### Academic Titles / Tasks

Associate Professor, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2022 - Continues

Assistant Professor, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2018 - 2022

Research Assistant, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2002 - 2018

### Academic and Administrative Experience

Deputy Head of Department, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2018 - 2022

### Courses

#### Postgraduate

Nesne Yönelimli Programlarla Veri Analizi I, Postgraduate, 2022 - 2023

Yüksek Enerji Detektörleri I, Postgraduate, 2022 - 2023

FZK5608 Yüksek Enerji Benzetişim Teknikleri I, Postgraduate, 2017 - 2018

#### Undergraduate

Temel Fizik I (İnşaat Müh.), Undergraduate, 2024 - 2025, 2023 - 2024, 2022 - 2023

Fiziğe Giriş II, Undergraduate, 2023 - 2024, 2022 - 2023

Temel Fizik II (İnşaat Müh.), Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022

Genel Fizik Lab. (Kimya Bl.), Undergraduate, 2023 - 2024, 2022 - 2023  
Fiziğe Giriş I, Undergraduate, 2024 - 2025, 2023 - 2024, 2022 - 2023  
Fizik II Lab., Undergraduate, 2021 - 2022  
Fizik II, Undergraduate, 2021 - 2022

## Supervised Theses

Koçak F., Gelecek dairesel elektron-hadron çarpıştırıcı (FCC-eh) detektörü için elektromagnetik kalorimetre tasarımı çalışması, Postgraduate, Z.HASHIMI(Student), 2023  
Koçak F., Position resolution in crystal calorimeter, Postgraduate, M.FAKHRELDIN(Student), 2021

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

- I. **An experiment for electron-hadron scattering at the LHC**  
Andre K. D. J., Bella L. A., Armesto N., Bogacz S. A., Britzger D., Bruening O. S., D'Onofrio M., Ferreiro E. G., Fischer O., Gwenlan C., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.1, 2022 (SCI-Expanded)
- II. **The Large Hadron-Electron Collider at the HL-LHC**  
Agostini P., Aksakal H., Alekhin S., Allport P. P., Andari N., Andre K. D. J., Angal-Kalinin D., Antusch S., Aperio Bella L., Apolinario L., et al.  
JOURNAL OF PHYSICS G-NUCLEAR AND PARTICLE PHYSICS, no.11, 2021 (SCI-Expanded)
- III. **Determination of Position Resolution for LYSO Scintillation Crystals Using Geant4 Monte Carlo Code**  
Yahya M. F. O., Kocak F.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2021, 2021 (SCI-Expanded)
- IV. **EVALUATION OF ENERGY RESOLUTION BY CHANGING ANGLE AND POSITION OF INCIDENT PHOTON IN A LYSO CALORIMETER**  
Saad A. M. E., Kocak F.  
ACTA PHYSICA POLONICA B, vol.51, no.11, 2020 (SCI-Expanded)
- V. **The impact of crystal length on calorimeter energy resolution**  
Saad A., Koçak F., Kirca Z.  
AIP Conference Proceedings, vol.2178, no.30045, 2019 (SCI-Expanded)
- VI. **FCC-hh: The Hadron Collider: Future Circular Collider Conceptual Design Report Volume 3**  
Abada A., Abbrescia M., AbdusSalam S. S., Abdyukhanov I., Abelleira Fernandez J., Abramov A., Aburaia M., Acar A. O., Adzic P. R., Agrawal P., et al.  
EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS, no.4, pp.755-1107, 2019 (SCI-Expanded)
- VII. **HE-LHC: The High-Energy Large Hadron Collider Future Circular Collider Conceptual Design Report Volume 4**  
Abada A., Abbrescia M., AbdusSalam S. S., Abdyukhanov I., Abelleira Fernandez J., Abramov A., Aburaia M., Acar A. O., Adzic P. R., Agrawal P., et al.  
EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS, no.5, pp.1109-1382, 2019 (SCI-Expanded)
- VIII. **FCC Physics Opportunities: Future Circular Collider Conceptual Design Report Volume 1**  
Abada A., Abbrescia M., AbdusSalam S. S., Abdyukhanov I., Fernandez J. A., Abramov A., Aburaia M., Acar A. O., Adzic P. R., Agrawal P., et al.  
EUROPEAN PHYSICAL JOURNAL C, no.6, 2019 (SCI-Expanded)
- IX. **FCC-ee: The Lepton Collider: Future Circular Collider Conceptual Design Report Volume 2**  
Abada A., Abbrescia M., AbdusSalam S. S., Abdyukhanov I., Fernandez J. A., Abramov A., Aburaia M., Acar A. O., Adzic P. R., Agrawal P., et al.  
EUROPEAN PHYSICAL JOURNAL-SPECIAL TOPICS, no.2, pp.261-623, 2019 (SCI-Expanded)
- X. **Simulation of LYSO Crystal for the TAC-PF Electromagnetic Calorimeter**

- Kocak F., Tapan İ.  
ACTA PHYSICA POLONICA A, no.3, pp.527-529, 2017 (SCI-Expanded)
- XI. **Radiation Effects on TAC-PF Electromagnetic Calorimeter**  
Pilicer E., Kocak F., Kilic A., Pilicer F. B., Tapan İ.  
ACTA PHYSICA POLONICA A, no.1, pp.190-192, 2017 (SCI-Expanded)
- XII. **Investigation of Shot Noise in Avalanche Photodiodes**  
Kocak F., Kilic A., Tapan İ.  
ACTA PHYSICA POLONICA A, no.4, pp.721-723, 2016 (SCI-Expanded)
- XIII. **Simulation studies of crystal-photodetector assemblies for the Turkish accelerator center particle factory electromagnetic calorimeter**  
Kocak F.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, vol.787, pp.144-147, 2015 (SCI-Expanded)
- XIV. **Influence of neutrons on signal fluctuations for APD structures**  
KILIÇ A., KOÇAK F., Pilicer E., Tapan İ.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, pp.215-216, 2013 (SCI-Expanded)
- XV. **A Large Hadron Electron Collider at CERN**  
Fernandez J. L. A., Adolphsen C., Akay A. N., Aksakal H., Albacete J. L., Alekhin S., Allport P., Andreev V., Appleby R. B., Arikan E., et al.  
JOURNAL OF PHYSICS G-NUCLEAR AND PARTICLE PHYSICS, no.7, 2012 (SCI-Expanded)
- XVI. **Signal fluctuations in crystal-APD systems**  
Kocak F., Tapan İ., Pilicer E.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, 2011 (SCI-Expanded)
- XVII. **PbWO<sub>4</sub> Cherenkov light contribution to Hamamatsu S8148 and zinc sulfide-silicon avalanche photodiodes signals**  
Kocak F., Tapan İ.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, no.1-3, pp.398-399, 2010 (SCI-Expanded)
- XVIII. **Electrical properties of n-Si/Cu Schottky diodes formed by electrodeposition**  
Ahmetoglu (Afrailov) M., Alper M., Safak M., Erturk K., Gurpinar B., Kocak F., Hacıismailoglu C.  
JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS, no.4, pp.818-821, 2007 (SCI-Expanded)
- XIX. **Excess noise in silicon avalanche photodiodes**  
Kocak F., Tapan İ.  
JOURNAL OF OPTOELECTRONICS AND ADVANCED MATERIALS, no.4, pp.810-813, 2007 (SCI-Expanded)
- XX. **Avalanche photodiodes for electromagnetic calorimeters**  
Pilicer E., Kocak F., Tapan İ., Ahmetoglu (Afrailov) M.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, no.1, pp.120-121, 2007 (SCI-Expanded)
- XXI. **Electrical properties of n-Si /Cu Schottky diodes formed by electrodeposition**  
AHMETOĞLU M., ALPER M., Safak M., Erturk K., Gurpinar B., KOÇAK F., HACIİSMAİLOĞLU M. C.  
Journal of Optoelectronics and Advanced Materials, vol.9, no.4, pp.818-821, 2007 (SCI-Expanded)
- XXII. **Change in the resistance of the semiconductor in the variable deformation field**  
Ahmetoglu (Afrailov) M., Gulyamov G., Shamirzaev S. H., Gulyamov A. G., Dadamirzaev M. G., Aprailov N., Kocak F.  
ROMANIAN JOURNAL OF PHYSICS, vol.52, pp.343-351, 2007 (SCI-Expanded)
- XXIII. **A ZnS-Si isotype heterojunction avalanche photodiode structure for scintillation light detection**  
Tapan İ., Ahmetoglu(Afrailov) M., Kocak F.  
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT, no.1, pp.268-271, 2006 (SCI-Expanded)
- XXIV. **Excess noise factor of neutron-irradiated silicon avalanche photodiodes**

Pilicer E., Kocak F., Tapan İ.

NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS  
DETECTORS AND ASSOCIATED EQUIPMENT, no.1-2, pp.146-151, 2005 (SCI-Expanded)

## Articles Published in Other Journals

- I. **New Crystal Photodiode Combination for Environmental Radiation Measurement**  
Tapan I, Kocak F.  
INTERNATIONAL JOURNAL OF ADVANCED AND APPLIED SCIENCES, vol.2, no.2, pp.64-67, 2023 (ESCI)
- II. **A Monte Carlo Study on Position Resolution of PWO Crystal**  
KOÇAK F.  
Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.21, no.2, pp.296-298, 2017 (Peer-Reviewed Journal)
- III. **Effect of Neutrons to the Silicon Avalanche Photodiode**  
KILIÇ A, KOÇAK F, PİLİÇER E, TAPAN İ, ÖZMUTLU E. N.  
Balkan Physics Letters, vol.20, no.201024, pp.208-214, 2012 (Peer-Reviewed Journal)
- IV. **Characterization of Electron Beams from Dosimetry Measurements**  
PİLİÇER E, ALPAT B, MENICHELLI M, SERVOLI L, ITALIANI M, KOÇAK F, BUONO E, CASALE M, MUTI M, CARAFFINI D., et al.  
Balkan Physics Letters, vol.19, no.191051, pp.445-451, 2011 (Peer-Reviewed Journal)

## Papers Published in Refereed Scientific Meetings

- I. **Sampling Calorimeter Design Study for the Future Circular Electron-Hadron Collider (FCC-eh) Electromagnetic Calorimeter**  
HASHİMİ Z., KOÇAK F.  
TURKISH PHYSICAL SOCIETY 38TH INTERNATIONAL PHYSICS CONGRESS, Muğla, Turkey, 31 August 2022
- II. **Influence of Electron Incidence Angle on Position Resolution in Crystal Calorimeters**  
Yahya M. F. O., Koçak F.  
2nd International Conference on Light and Light-based Technologies (ICLLT), Ankara, Turkey, 26 - 28 May 2021
- III. **Detector Design for LHeC / lowE-FCCeh / FCCeh**  
Ghaddi A, KLEIN M, KOSTKA P, Polini A, Pilicer E, KOÇAK F, Kilic A, Kate H. T, Dudarev A.  
ELECTRONS FOR THE LHC: Workshop on the LHeC, FCC-eh and PERLE, 24 - 25 October 2019
- IV. **Kalorimetreler**  
KOÇAK F.  
VII. Uluslararası Katılımlı Parçacık Hızlandırıcıları ve Detektörleri Yaz Okulu-UPHDYO VII, Turkey, 21 - 26 August 2011
- V. **Detector Design for LHeC/HE-LHeC/FCCeh**  
KLEIN M, KOSTKA P, PİLİÇER E, KOÇAK F, KILIÇ A.  
Electrons for the LHC - LHeC/FCC-eh and PERLE Workshop, Orsay, France, 27 - 29 June 2018
- VI. **Calculation of Position Resolution for LYSO Crystal**  
KOÇAK F.  
APMAS2017-7th International Advances in Applied Physics and Materials Science Congress Exhibition, Turkey, 22 - 26 April 2017
- VII. **Kristal Kalorimetre Simülasyonu**  
KOÇAK F.  
XI. Ulusal Nükleer Bilimler ve Teknolojileri Kongresi, Turkey, 12 - 14 October 2016
- VIII. **Sintilyasyon Detektörleri**  
KOÇAK F.

- X. Uluslararası Katılımlı Parçacık Hızlandırıcıları ve Detektörleri Yaz Okulu, Turkey, 14 - 19 July 2014
- IX. **THM PF Detektörü Kalorimetre Ünitesi Çalışmaları**  
KILIÇ A., KOÇAK F.  
THM Parçacık Fabrikası Çalıştayı, Ankara, Turkey, 3 - 05 May 2013
- X. **Simulation of Radiation Damage with GEANT4 and SRIM Interface**  
KILIÇ A., KOÇAK F., PİLİÇER B., PİLİÇER E.  
Turkish Physical Society 29th International Physics Congress, 5 - 08 September 2012
- XI. **Characterization of Silicon Detectors to Heavy Ions**  
KILIÇ A., KOÇAK F., PİLİÇER B., PİLİÇER E.  
TFD 29. Uluslararası Fizik Kongresi, BODRUM, Turkey, 5 - 08 September 2012
- XII. **Simulation of Let and Range**  
KILIÇ A., KOÇAK F., PİLİÇER B., PİLİÇER E.  
Turkish Physical Society 29th International Physics Congress TFD29, 5 - 08 September 2012
- XIII. **Preliminary Design of the TAC SR Photon Diagnostic System**  
KOÇAK F., TAPAN İ.  
SESAME-JSPS-Sabancı University Synchrotron Radiation School, Antalya, Turkey, 28 February - 06 March 2010
- XIV. **THM IR SEL Foton Diyagnostik Sistemi Çalışması**  
KOÇAK F.  
VIII. THM YUUP (Türk Hızlandırıcı Merkezi Yaygınlaştırılmış Ulusal ve Uluslararası Pproje) Çalıştayı, Ankara, Turkey, 7 - 08 December 2009
- XV. **Sinkrotron Işınımı için Model Diyagnostik Sistemi**  
KOÇAK F., TAPAN İ.  
VII. THM YUUP Çalıştayı (Türk Hızlandırıcı Merkezi Yaygınlaştırılmış Ulusal ve Uluslararası Proje), Kayseri, Turkey, 18 - 20 June 2009
- XVI. **Sinkrotron Işınımı Foton Diyagnostiği**  
KOÇAK F., TAPAN İ.  
VI. THM YUUP Çalıştayı (Türk Hızlandırıcı Merkezi Yaygınlaştırılmış Ulusal ve Uluslararası Proje), Ankara, Turkey, 2 - 05 December 2008
- XVII. **Foton Demet Diagnostiği**  
KOÇAK F., ŞAHİN Ö., TAPAN İ.  
3. Ulusal Parçacık Hızlandırıcıları ve Uygulamaları Kongresi (UPHUK3), Turkey, 17 - 19 September 2007
- XVIII. **Fluctuations in Avalanche photodiode structure**  
KOÇAK F., TAPAN İ.  
6th International Conference of the Balkan-Physical-Union, İstanbul, Turkey, 22 - 26 August 2006, pp.201-202
- XIX. **Excess Noise in Silicon Avalanche Photodiodes**  
KOÇAK F., TAPAN İ.  
IBWAP07- 7th International Balkan Workshop on Applied Physics, Constanta, Romania, 5 - 07 July 2006
- XX. **Investigation of Photon Detection Efficiency for Avalanche Photodiode (APD) Structure**  
KOÇAK F., TAPAN İ.  
5th General Conference of the Balkan Physical Union BPU-5, Vrnjacka Banja, Serbia, 25 - 29 August 2003

## Supported Projects

KOÇAK F., KILIÇ A., Project Supported by Higher Education Institutions, X Işınları ile Yeni Nesil CdTe Yarıiletken Detektörünün Karakterizasyon İncelemeleri, 2014 - 2017

Tapan İ., Piliçer E., Piliçer F. B., Kılıç A., Koçak F., Project Supported by Higher Education Institutions, SiPM Detektörü ile Enerji ve Zaman Çözünürlüğü Ölçümleri, 2015 - 2016

KOÇAK F., Project Supported by Higher Education Institutions, SiPM Detektörü İle Enerji ve Zaman Çözünürlüğü Ölçümleri, 2015 - 2016

KOÇAK F., Project Supported by Higher Education Institutions, Yeni Nesil Sintilasyon Detektörlerinin Karakterizasyonu

ve Geliştirilmesi, 2013 - 2016

KOÇAK F., ALPER M., Other International Funding Programs, Electrodeposition of Nanostructured Materials and Their Magnetic and Magnetotransport Characterisation, 2004 - 2005

## **Metrics**

Publication: 50

Citation (WoS): 2135

Citation (Scopus): 2697

H-Index (WoS): 9

H-Index (Scopus): 9