

## Prof. İLKAY TÜRK ÇAKIR



### Personal Information

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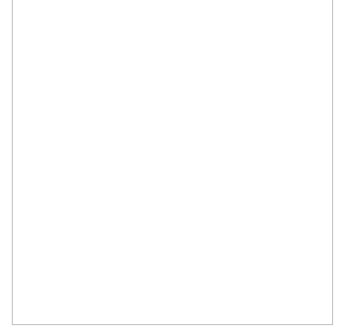
### International Researcher IDs

ORCID: 0000-0002-0726-5648

Publons / Web Of Science ResearcherID: HNI-7509-2023

ScopusID: 56771589500

Yoksis Researcher ID: 135086



### Research Areas

Experimental High Energy Physics Studies, Particle Accelerators, Particle Detectors and Calorimeters, Physics Analysis and Simulation Studies

### Academic Titles / Tasks

Professor, Ankara University, Hızlandırıcı Teknolojileri Enstitüsü, Hızlandırıcı Teknolojileri Anabilim Dalı, 2023 - Continues

Professor, Giresun University, MÜHENDİSLİK FAKÜLTESİ, ENERJİ SİSTEMLERİ MÜHENDİSLİĞİ BÖLÜMÜ, 2016 - 2022

Associate Professor, Giresun University, MÜHENDİSLİK FAKÜLTESİ, ENERJİ SİSTEMLERİ MÜHENDİSLİĞİ BÖLÜMÜ, 2015 - 2017

Associate Professor, Istanbul Aydın University, Mühendislik Fakültesi, ELEKTRİK-ELEKTRONİK MÜHENDİSLİĞİ BÖLÜMÜ, 2014 - 2015

Research Assistant, Ankara University, Fen Fakültesi, Fizik Bölümü, 1995 - 2002

### Academic and Administrative Experience

Director of The Institution, Ankara University, 2023 - Continues

Deputy Director of Research Institute, Istanbul Aydın University, 2014 - 2015

### Courses

HADRON FİZİĞİ, Postgraduate, 2022 - 2023

DEMET FİZİĞİNE GİRİŞ, Postgraduate, 2022 - 2023

INTRODUCTION TO STATISTICAL AND PROBABILITY , Undergraduate, 2023 - 2024

### Jury Memberships

Doctorate, Doctorate, Ankara Üniversitesi, June, 2023

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

- I. **Improved methane production from ultrasonically-pretreated secondary sedimentation tank sludge and new model proposal: Time series (ARIMA)**  
ŞENOL H., Cakir I. T., Bianco F., GÖRGÜN E.  
BIORESOURCETECHNOLOGY, vol.391, 2024 (SCI-Expanded)
- II. **Measurement of the polarisation of single top quarks and antiquarks produced in the  $t\bar{t}$ -channel at  $\sqrt{s}=13$  TeV and bounds on the  $tWb$  dipole operator from the ATLAS experiment**  
Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Abramowicz H., Abreu H., Abulaiti Y., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.11, 2022 (SCI-Expanded)
- III. **Search for type-III seesaw heavy leptons in leptonic final states in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.11, 2022 (SCI-Expanded)
- IV. **Search for Higgs boson pair production in the two bottom quarks plus two photons final state in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.  
PHYSICAL REVIEW D, vol.106, no.5, 2022 (SCI-Expanded)
- V. **Observation of  $WWW$  Production in  $pp$  Collisions at  $\sqrt{s}=13$  TeV with the ATLAS Detector**  
Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz H., Abreu H., et al.  
PHYSICAL REVIEW LETTERS, vol.129, no.6, 2022 (SCI-Expanded)
- VI. **Measurements of Higgs boson production cross-sections in the  $H \rightarrow \tau^+\tau^-$  decay channel in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.8, 2022 (SCI-Expanded)
- VII. **Search for events with a pair of displaced vertices from long-lived neutral particles decaying into hadronic jets in the ATLAS muon spectrometer in  $pp$  collisions at  $\sqrt{s}=13$  TeV**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
PHYSICAL REVIEW D, vol.106, no.3, 2022 (SCI-Expanded)
- VIII. **Measurements of the Higgs boson inclusive and differential fiducial cross-sections in the diphoton decay channel with  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.8, 2022 (SCI-Expanded)
- IX. **Study of  $B_c \rightarrow J/\psi D_s$  and  $B_c \rightarrow J/\psi D_s^*$  decays in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**  
Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.8, 2022 (SCI-Expanded)
- X. **Search for invisible Higgs-boson decays in events with vector-boson fusion signatures using  $fb^{-1}$  of proton-proton data recorded by the ATLAS experiment**  
Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz

H., Abreu H., et al.

JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.8, 2022 (SCI-Expanded)

- XI. **Measurements of jet observables sensitive to  $b$ -quark fragmentation in  $t\bar{t}$  over-bar events at the LHC with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Abouzeid O., Abraham N., Abramowicz H., et al.  
PHYSICAL REVIEW D, vol.106, no.3, 2022 (SCI-Expanded)
- XII. **Modelling and computational improvements to the simulation of single vector-boson plus jet processes for the ATLAS experiment**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.8, 2022 (SCI-Expanded)
- XIII. **Constraints on Higgs boson properties using  $WW^*(\rightarrow e\nu\mu\nu)jj$  production in  $36.1 \text{ fb}^{-1}$  of  $\sqrt{s}=13 \text{ TeV}$   $pp$  collisions with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., AbouZeid O., Abraham N., Abramowicz H., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.7, 2022 (SCI-Expanded)
- XIV. **Two-particle Bose-Einstein correlations in  $pp$  collisions at  $\sqrt{s}=13 \text{ TeV}$  measured with the ATLAS detector at the LHC**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., AbouZeid O., Abraham N., Abramowicz H., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.7, 2022 (SCI-Expanded)
- XV. **Search for long-lived charginos based on a disappearing-track signature using  $136 \text{ fb}^{-1}$  of  $pp$  collisions at  $\sqrt{s}=13 \text{ TeV}$  with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.7, 2022 (SCI-Expanded)
- XVI. **Measurements of azimuthal anisotropies of jet production in Pb collisions at  $\sqrt{s}=5.02 \text{ TeV}$  with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
PHYSICAL REVIEW C, vol.105, no.6, 2022 (SCI-Expanded)
- XVII. **Measurements of differential cross-sections in top-quark pair events with a high transverse momentum top quark and limits on beyond the Standard Model contributions to top-quark pair production with the ATLAS detector at  $\sqrt{s}=13 \text{ TeV}$**   
Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.6, 2022 (SCI-Expanded)
- XVIII. **Measurement of Higgs boson decay into  $b$ -quarks in associated production with a top-quark pair in  $pp$  collisions at  $\sqrt{s}=13 \text{ TeV}$  with the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.6, 2022 (SCI-Expanded)
- XIX. **Constraints on Higgs boson production with large transverse momentum using  $H \rightarrow b\bar{b}$  decays in the ATLAS detector**  
Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.  
PHYSICAL REVIEW D, vol.105, no.9, 2022 (SCI-Expanded)
- XX. **Search for resonant pair production of Higgs bosons in the  $b\bar{b}$  over-bar  $b\bar{b}$  over-bar final state using  $pp$  collisions at  $\sqrt{s}=13 \text{ TeV}$  with the ATLAS detector**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.

PHYSICAL REVIEW D, vol.105, no.9, 2022 (SCI-Expanded)

- XXI. **Determination of the parton distribution functions of the proton using diverse ATLAS data from  $\sqrt{s}=7, 8$  and 13 TeV  $pp$  collisions**

Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

EUROPEAN PHYSICAL JOURNAL C, vol.82, no.5, 2022 (SCI-Expanded)

- XXII. **Search for single production of a vectorlike T quark decaying into a Higgs boson and top quark with fully hadronic final states using the ATLAS detector**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

PHYSICAL REVIEW D, vol.105, no.9, 2022 (SCI-Expanded)

- XXIII. **Measurement of the energy asymmetry in  $t\bar{t}$  production at 13 TeV with the ATLAS experiment and interpretation in the SMEFT framework**

Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

EUROPEAN PHYSICAL JOURNAL C, vol.82, no.4, 2022 (SCI-Expanded)

- XXIV. **Search for flavour-changing neutral-current interactions of a top quark and a gluon in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

EUROPEAN PHYSICAL JOURNAL C, vol.82, no.4, 2022 (SCI-Expanded)

- XXV. **Search for Higgs bosons decaying into new spin-0 or spin-1 particles in four-lepton final states with the ATLAS detector with 139 fb<sup>-1</sup> of  $pp$  collision data at  $\sqrt{s}=13$  TeV**

Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz H., Abreu H., et al.

JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.3, 2022 (SCI-Expanded)

- XXVI. **Search for new phenomena in three- or four-lepton events in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., AbouZeid O., Abramowicz H., Abreu H., et al.

Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, vol.824, 2022 (SCI-Expanded)

- XXVII. **Search for Higgs boson decays into a pair of pseudoscalar particles in the  $b\bar{b}\mu\mu$  final state with the ATLAS detector in  $pp$  collisions at  $\sqrt{s}=13$  TeV**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

PHYSICAL REVIEW D, vol.105, no.1, 2022 (SCI-Expanded)

- XXVIII. **Operation and performance of the ATLAS semiconductor tracker in LHC Run 2**

Aad G., Abbott B., Abbott D., Abud A. A., Abeling K., Abhayasinghe D., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., et al.

JOURNAL OF INSTRUMENTATION, vol.17, no.1, 2022 (SCI-Expanded)

- XXIX. **Search for exotic decays of the Higgs boson into  $b\bar{b}(\bar{b})$  and missing transverse momentum in  $pp$  collisions at  $\sqrt{s}=13$  TeV with the ATLAS detector**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.

JOURNAL OF HIGH ENERGY PHYSICS, vol.2022, no.1, 2022 (SCI-Expanded)

- XXX. **Measurement of the  $c$ -jet mistagging efficiency in  $t(\bar{t})\bar{t}$  events using  $pp$  collision data at  $\sqrt{s}=13$  TeV collected with the ATLAS detector**

Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Aboulhorma A., Abramowicz

H., Abreu H., et al.

EUROPEAN PHYSICAL JOURNAL C, vol.82, no.1, 2022 (SCI-Expanded)

**XXXI. Search for heavy particles in the b-tagged dijet mass distribution with additional b-tagged jets in proton-proton collisions at  $p\sqrt{s}=13$  TeV with the ATLAS experiment**

Aad G., Abbott B., Abbott D., Abed Abud A., Abeling K., Abhayasinghe D., Abidi S., Abramowicz H., Abreu H., Abulaiti Y., et al.

PHYSICAL REVIEW D, vol.105, no.1, 2022 (SCI-Expanded)

**XXXII. Search for R-parity-violating supersymmetry in a final state containing leptons and many jets with the ATLAS experiment using root  $s=13$  TeV proton-proton collision data**

Aad G., Abbott B., Abbott D. C., Abud A. A., Abeling K., Abhayasinghe D. K., Abidi S. H., Abramowicz H., Abreu H., Abulaiti Y., et al.

EUROPEAN PHYSICAL JOURNAL C, vol.81, no.11, 2021 (SCI-Expanded)

## Articles Published in Other Journals

**I. Software Performance of the ATLAS Track Reconstruction for LHC Run 3**

Aad G., Abbott B., Abeling K., Abicht N., Abidi S., Aboulhorma A., Abramowicz H., Abreu H., Abulaiti Y., Acharya B., et al.

Computing and Software for Big Science, vol.8, no.1, 2024 (Scopus)

**II. Increasing the Biomethane Production of Cattle Manure in Anaerobic Bioreactor by Thermal Pretreatments**

TURK ÇAKIR I., Şenol h., KAYGUSUZ E.

Karadeniz Fen Bilimleri Dergisi, vol.13, no.2, pp.652-664, 2023 (Peer-Reviewed Journal)

**III. Change in Body Dose of I-131 Radioisotope in Boys by Age**

KOCA T., SARPÜN İ. H., Yıldırım Ü., TÜRK ÇAKIR İ., Şahin S.

Afyon Kocatepe Üniversitesi Uluslararası Mühendislik Teknolojileri ve Uygulamaları Bilimler Dergisi, 2021 (Peer-Reviewed Journal)

## Supported Projects

Denizli H., Şenol A., Çakir O., Türk Çakir I., Sultanov S., Yilmaz A., Kuday S., Energy and Natural Resources Ministry, Detector and Physics Research For CERN Future Circular Collider (FCC), 2018 - 2022

## Memberships / Tasks in Scientific Organizations

FCC FUTURE CIRCULAR COLLIDER, Country Representative, 2020 - Continues, Turkey

CERN ATLAS DENEYİ, Member, 2000 - Continues, Turkey

## Tasks In Event Organizations

Türk Çakır İ., FCC İş Birliği Çerçevesinde Ulusal Bilgi Paylaşımı Çalıştayı, Workshop Organization, Turkey, Nisan 2022

## Metrics

Publication: 76

Citation (WoS): 444

Citation (Scopus): 648

H-Index (WoS): 7

H-Index (Scopus): 15

### **Invited Talks**

FCC , Workshop, ISPAD 2023, Turkey, May 2023