

## Assoc. Prof. CEREN TAYRAN

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAB-1509-2019

ScopusID: 36807337000

Yoksis Researcher ID: 134469

### Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 2010 - 2014

Doctorate, Michigan State University, Department of Physics and Astronomy, United States Of America 2012 - 2013

Postgraduate, Gazi University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), Turkey 2007 - 2010

Undergraduate, Gazi University, Fen Fakültesi, Fizik Bölümü, Turkey 2003 - 2007

### Dissertations

Doctorate, Silisyum ve galyum arsenit yüzeylerine tutunmuş grafitik nano yapıların elektronik özellikleri, Gazi University, Fen Bilimleri Enstitüsü, Fizik (Dr), 2014

Postgraduate, Titanya yüzeyine karbon nanotüp tutunması: Yapısal ve elektronik özellikler, Gazi University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 2009

### Research Areas

Physics

### Academic Titles / Tasks

Associate Professor, Gazi University, Fen Fakültesi, Fizik, 2021 - Continues

Research Assistant, Gazi University, Fen Fakültesi, Fizik, 2009 - 2020

### Academic and Administrative Experience

Deputy Head of Department, Gazi University, Fen Fakültesi, Fizik, 2022 - 2023

### Courses

Surface Science, Undergraduate, 2022 - 2023

PHYSICS II, Undergraduate, 2020 - 2021

FİZİK I, Undergraduate, 2020 - 2021

FİZİK LABORATUVARI, Undergraduate, 2020 - 2021

FİZİK LABORATUVARI IV (ELEKTRONİK), Undergraduate, 2020 - 2021

PHYSICS LABORATORY, Undergraduate, 2018 - 2019

FİZİK LABORATUVARI, Undergraduate, 2018 - 2019

## Advising Theses

Tayran C., Electrical properties of double-layer Si<sub>3</sub>N<sub>4</sub> dielectric layer in GaN hemt devices, Postgraduate, Y.DURMUŞ(Student), 2023

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

- I. **Novel two-dimensional Janus YMN (M= I, Br and N= Cl, Br) monolayers**  
Tayran C., Mogulkoc Y., Çakmak M.  
MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING, vol.166, pp.1-9, 2023 (SCI-Expanded)
- II. **Atomic, electronic, and superconducting properties of Zr<sub>2</sub>Ir compound**  
TAYRAN C., ÇAKMAK M.  
Physica B: Condensed Matter, vol.661, 2023 (SCI-Expanded)
- III. **Electron–phonon coupling of the Ti<sub>3</sub>Sb compound**  
Tayran C., Kim M., Çakmak M.  
JOURNAL OF APPLIED PHYSICS, vol.132, no.075103, pp.1-7, 2022 (SCI-Expanded)
- IV. **Charge density wave in a SnSe<sub>2</sub> layer on Sn/Si(111)-(root 3 x root 3)R30 degrees and the effect of surface hydrogenation**  
TAYRAN C., ÇAKMAK M.  
PHYSICAL CHEMISTRY CHEMICAL PHYSICS, vol.24, no.11, pp.6820-6827, 2022 (SCI-Expanded)
- V. **Biaxial Strain-Induced Electronic Structure and Optical Properties of SiP<sub>2</sub>S Monolayer**  
Tayran C., Caglayan R., Mogulkoc Y., ÇAKMAK M., Alkan B.  
JOURNAL OF ELECTRONIC MATERIALS, vol.50, no.11, pp.6253-6260, 2021 (SCI-Expanded)
- VI. **Electronic, phononic and superconducting properties of trigonal Li<sub>2</sub>MSi<sub>2</sub> (M = Ir, Rh)**  
TAYRAN C., ÇAKMAK M.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.33, no.6, 2021 (SCI-Expanded)
- VII. **Quantum-well states for uniform Ag layers on the Ga-induced Si (111)-(root 3 x root 3)R30 degrees surface**  
TAYRAN C., ÇAKMAK M., Srivastava G. P.  
SURFACE SCIENCE, vol.701, 2020 (SCI-Expanded)
- VIII. **Adsorption of S on Si(111) with M-4 x 4 superstructure**  
TAYRAN C., ÇAKMAK M., Srivastava G. P.  
SURFACE SCIENCE, vol.701, 2020 (SCI-Expanded)
- IX. **Atomic and electronic structures of Sn covered W(110) surface**  
TAYRAN C., ÇAKMAK M., Srivastava G. P.  
EUROPEAN PHYSICAL JOURNAL B, vol.93, no.1, 2020 (SCI-Expanded)
- X. **Electronic structure, phonon and superconductivity for WP 5d-transition metal**  
TAYRAN C., ÇAKMAK M.  
JOURNAL OF APPLIED PHYSICS, vol.126, no.17, 2019 (SCI-Expanded)
- XI. **Electronic structure of the Pd<sub>2</sub>Sn surface alloy on Pd(111)-(root 3 x root 3)R30 degrees**  
TAYRAN C., ÇAKMAK M.  
EUROPEAN PHYSICAL JOURNAL B, vol.92, no.10, 2019 (SCI-Expanded)

- XII. **Tl on the Si(111)-(root 7 x root 3) surface: Density Functional Theory**  
TAYRAN C., Alkan B., ÇAKMAK M.  
PHILOSOPHICAL MAGAZINE, vol.99, no.13, pp.1656-1668, 2019 (SCI-Expanded)
- XIII. **Electronic structure of Lanthanum induced pi-bonded Seiwatz chains on the Si(111)-(2 x 3) surface**  
TAYRAN C.  
SURFACE SCIENCE, vol.679, pp.214-217, 2019 (SCI-Expanded)
- XIV. **Co on the H-passivated Si(001) surface: Density-functional calculations**  
TAYRAN C., ÇAKMAK M.  
PHYSICA B-CONDENSED MATTER, vol.542, pp.44-50, 2018 (SCI-Expanded)
- XV. **The structural, mechanical, and electronic properties of LiAlB<sub>4</sub> under pressure from first principles**  
TAYRAN C., AYDIN S.  
PHYSICA STATUS SOLIDI C: CURRENT TOPICS IN SOLID STATE PHYSICS, VOL 14 NO 5, vol.14, no.5, 2017 (SCI-Expanded)
- XVI. **Alkali and Alkaline earth metal doped aluminum tetraborides containing intrinsic planar boron sheet: XAlB<sub>4</sub> (X = Li, Mg, Ca, and Na)**  
TAYRAN C., AYDIN S., ÇAKMAK M., Ellialtioglu S.  
COMPUTATIONAL MATERIALS SCIENCE, vol.124, pp.130-141, 2016 (SCI-Expanded)
- XVII. **Structural and electronic properties of AB- and AA-stacking bilayer-graphene intercalated by Li, Na, Ca, B, Al, Si, Ge, Ag, and Au atoms**  
TAYRAN C., AYDIN S., ÇAKMAK M., Ellialtioglu S.  
SOLID STATE COMMUNICATIONS, vol.231, pp.57-63, 2016 (SCI-Expanded)
- XVIII. **Optimizing Electronic Structure and Quantum Transport at the Graphene-Si(111) Interface: An Ab Initio Density-Functional Study**  
TAYRAN C., Zhu Z., Baldoni M., Selli D., Seifert G., Tomanek D.  
PHYSICAL REVIEW LETTERS, vol.110, no.17, 2013 (SCI-Expanded)
- XIX. **Electronic and structural properties of armchair SWCNT/TiO<sub>2</sub>(110)-(1 x 2) system**  
TAYRAN C., ÇAKMAK M., Ellialtioglu S.  
SURFACE SCIENCE, vol.605, pp.593-596, 2011 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Effect of Pressure on Electronic, Mechanical and Dynamic Properties for Orthorhombic WP**  
Tayran C., Çakmak M.  
GAZI UNIVERSITY JOURNAL OF SCIENCE, vol.36, pp.1, 2024 (Scopus)
- II. **Theoretical study of B segregation in Mo(110)**  
TAYRAN C.  
BOR DERGİSİ, vol.3, no.3, pp.174-179, 2018 (Peer-Reviewed Journal)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Phagrafen Tipi Bor Nitrür Yapısının Atomik ve Elektronik Özellikleri**  
TAYRAN C.  
24. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 21 December 2018
- II. **Cerium Adsorption on the Si(111) Surface: Density Functional Theory**  
TAYRAN C.  
International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2018), Turkey, 22 - 23 November 2018
- III. **Theoretical Study of Monolayer Sn Covered W(110) Surface**  
TAYRAN C., ÇAKMAK M., SRIVASTAVA G. P.

International Congress on the World of Technology and Advanced Materials (WITAM-2018), Turkey, 21 - 23 September 2018

- IV. **Theoretical Study of TI Single and Double Layer on the Si(111)-(root7 x root3) Surface**  
TAYRAN C., ALKAN Ş. B., ÇAKMAK M.  
International Congress on the World of Technology and Advanced Materials (WITAM-2018), Turkey, 21 - 23 September 2018
- V. **Frictional Force and Sliding Mechanism of Functionalized Graphene Systems**  
TAYRAN C., GÜLSEREN O.  
European Materials Research Society 2017 Fall Meeting (E-MRS), Poland, 18 - 21 September 2017
- VI. **Katkılı ve Katkısız İki Tabakalı Grafen Sistemlerinde İlk-Prensipler ile Sürtünme Kuvvetinin İncelenmesi**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
22. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 16 December 2016
- VII. **Grafenin 4H-SiC{0001} Yüzeyleri Üzerinde Sürtünmesinin İlk Prensipler Hesaplarıyla İncelenmesi**  
SAYIN C. S., TAYRAN C., GÜLSEREN O.  
22. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 16 December 2016
- VIII. **Friction of Graphene over 4H-SiC{0001} Surfaces**  
SAYIN C. S., TAYRAN C., GÜLSEREN O.  
2016 Graphene Related Materials Conference (GRM-2016), Turkey, 13 - 15 July 2016
- IX. **Superlubricity and Frictional Force of Bilayer Graphene System**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
2016 Graphene and Related Materials Conference (GRM-2016), Turkey, 13 - 15 July 2016
- X. **Grafen Yüzeyinde Kayan Grafen Parçacığı**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
V. Yoğun Madde Fiziği İzmir Toplantısı, Turkey, 15 April 2016
- XI. **Ab Initio Study of Friction of Graphene Flake on Graphene/Graphite or SiC Surface**  
GÜLSEREN O., TAYRAN C., SAYIN C. S.  
APS March Meeting 2016, United States Of America, 14 - 18 March 2016
- XII. **Nano Ölçekte Sürtünmenin İlk-Prensipler ile İncelenmesi: Grafen Üzerinde Grafen Parçacıkları**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
21. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 25 December 2015
- XIII. **Structural mechanical and electronic properties of XAlB<sub>4</sub> X Li N Ca and Na**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
9th International Physics Conference of the Balkan Physical Union, 24 - 27 August 2015
- XIV. **First-Principles Investigation of Friction: Graphene Flake on Graphene or SiC Surface**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
9th International Physics Conference of the Balkan Physical Union (BPU9), Turkey, 24 August 2015 - 27 August 2016
- XV. **Structural, Mechanical, and Electronic Properties of XAlB<sub>4</sub> (X=Li, Mg, Ca, and Na)**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
9th International Physics Conference of the Balkan Physical Union (BPU9), Turkey, 24 - 27 August 2015
- XVI. **Graphene Flake on Graphene: First Principles Study of Nanofriction**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
The International Conference on Understanding and Controlling Nano and Mesoscale Friction, Turkey, 22 - 26 June 2015
- XVII. **First-Principles Study of Layer-Intercalated Trilayer Graphene**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
11th Nanoscience and Nanotechnology Conference (NanoTR-11), Turkey, 22 - 25 June 2015
- XVIII. **Investigation of Friction Between Graphene Flake and Graphene From First Principles**  
TAYRAN C., SAYIN C. S., GÜLSEREN O.  
11th Nanoscience and Nanotechnology Conference (NanoTR-11), Turkey, 22 - 25 June 2015

- XIX. **Li-Katkılı Üç-Tabakalı Grafen Sistemlerinin Yapısal ve Elektronik Özellikleri**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
20. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 26 December 2014
- XX. **Optimizing Electronic Structure and Quantum Transport at the Graphene-Si(111) Interface: An Ab-Initio Density-Functional Study**  
TAYRAN C., ZHU Z., BALDONI M., SELLI D., SEIFERT G., TOMANEK D.  
30th European Conference on Surface Science (ECOSS-30), Turkey, 31 August - 05 September 2014
- XXI. **Atomic and Electronic Properties of Wavy Graphene/Bi/GaAs(001)-alpha2(2x4) Surface**  
TAYRAN C., USANMAZ D., ÇAKMAK M., ALKAN Ş. B., ELLİALTIOĞLU S. Ş.  
30th European Conference on Surface Science (ECOSS-30), Turkey, 31 August - 05 September 2014
- XXII. **The Structural and Electronic Properties of X (Li, Ag, Au)-Intercalated AB Stacking Bilayer-Graphene**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
30th European Conference on Surface Science (ECOSS-30), Turkey, 31 August - 05 September 2014
- XXIII. **X(=Li, Na, Ca, B, Al, Si, Ge, Ag, Au)-Intercalated AA-Stacking Bilayer-Graphene**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
Turkish Physical Society 31st International Physical Congress, Turkey, 21 - 24 July 2014
- XXIV. **Structural and Electronic Properties of Li-Intercalated AA-Stacking Bilayer-Graphene: A First-Principles Study**  
TAYRAN C., AYDIN S., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
Turkish Physical Society 31st International Physical Congress, Turkey, 21 - 24 July 2014
- XXV. **Grafen'in Bi/GaAs(001)-alfa2(2x4) Yüzeyine Tutunması**  
TAYRAN C., USANMAZ D., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
19. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 20 December 2013
- XXVI. **Rutil TiO<sub>2</sub> Yüzeyi Üzerinde İçi Platin Katkılanmış Karbon Nanotüp Tutunması**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
17. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 05 November 2010
- XXVII. **Armchair Double-Walled Carbon Nanotube on Rutile TiO<sub>2</sub>(110)-(1x2)**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
International Conference "Physics 2010", Azerbaijan, 30 June - 02 July 2010, vol.16, pp.126-128
- XXVIII. **Rutil TiO<sub>2</sub>(110)-(1x2) Yüzeyine Tutunmuş Karbon Nanotüpün Elektronik Özellikleri**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
16. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 06 November 2009
- XXIX. **Electronic Properties of Carbon Nanotubes Adsorbed on Reconstructed Rutile TiO<sub>2</sub>(110) Surface: A DFT Study**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
26th European Conference on Surface Science (ECOSS-26), Italy, 30 August - 04 September 2009
- XXX. **Electronic Properties of Carbon Nanotubes Adsorbed on Reconstructed Rutile TiO<sub>2</sub>(110)-(1x2) Surface**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
5. Ulusal Nanobilim ve Nanoteknoloji Konferansı (NanoTR-V), Turkey, 8 - 12 June 2009
- XXXI. **Rutil TiO<sub>2</sub>(110)-(1x2) Yüzeyi Üzerindeki Karbon Nanotüp'ün Yapısal ve Elektronik Özellikleri**  
TAYRAN C., ÇAKMAK M., METE E., ELLİALTIOĞLU S. Ş.  
15. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 07 November 2008
- XXXII. **Structural and Electronic Properties of Carbon Nanotubes on the TiO<sub>2</sub>(110)-(1x2) Surface**  
TAYRAN C., ÇAKMAK M., ELLİALTIOĞLU S. Ş.  
Turkish Physical Society 25th International Physical Congress, Turkey, 25 - 29 August 2008

## Activities in Scientific Journals

## **Scientific Refereeing**

JOURNAL OF PHYSICS CONDENSED MATTER, SCI Journal, August 2023  
GAZI UNIVERSITY JOURNAL OF SCIENCE, National Scientific Refreed Journal, July 2023  
JOURNAL OF PHYSICS CONDENSED MATTER, SCI Journal, June 2023  
SAKARYA UNIVERSITY JOURNAL OF SCIENCE, National Scientific Refreed Journal, June 2023  
JOURNAL OF PHYSICS CONDENSED MATTER, SCI Journal, April 2023  
JOURNAL OF MATERIALS ENGINEERING AND PERFORMANCE, SCI Journal, February 2023  
ECS JOURNAL OF SOLID STATE SCIENCE AND TECHNOLOGY, SCI Journal, December 2022  
PHYSICA SCRIPTA, SCI Journal, November 2022  
PHYSICA SCRIPTA, SCI Journal, September 2022  
JOURNAL OF PHYSICS D - APPLIED PHYSICS, SCI Journal, April 2022  
INTERNATIONAL JOURNAL OF QUANTUM CHEMISTRY, Journal Indexed in SCI-E, February 2022  
JOURNAL OF PHYSICS-CONDENSED MATTER, SCI Journal, July 2021  
JOURNAL OF PHYSICS-CONDENSED MATTER, SCI Journal, June 2021  
JOURNAL OF PHYSICS-CONDENSED MATTER, SCI Journal, October 2020  
SAKARYA UNIVERSITY JOURNAL OF SCIENCE, National Scientific Refreed Journal, February 2020  
SAKARYA UNIVERSITY JOURNAL OF SCIENCE, National Scientific Refreed Journal, February 2020

## **Metrics**

Publication: 53  
Citation (WoS): 77  
Citation (Scopus): 75  
H-Index (WoS): 5  
H-Index (Scopus): 5

## **Non Academic Experience**

MICHIGAN STATE UNIVERSITY