Önder Metin, Ph.D.

Professor of Chemistry

Department of Chemistry, College of Sciences, Koç University, 34450 Istanbul, Türkiye
Tel: +90 (212) 3380942 **e-mail:** ometin@ku.edu.tr

Website: https://metinresearchgroup.ku.edu.tr/

1. Education:

June 2012-June 2013	**Postdoctoral Studies,** Department of Chemistry, College of Sciences, Brown University, Providence, RI, USA, **Supervisor:** Prof. Dr. Shouheng Sun
Sept. 2006- Dec. 2010	**Ph.D. in Chemistry,** Graduate School of Natural and Applied Sciences, Middle East Technical University, Ankara, TÜRKIYE, **Supervisor:** Prof. Dr. Saim ÖZKAR
Sept. 2004-June 2006	**M.Sc. in Chemistry,** Graduate School of Natural and Applied Sciences, Middle East Technical University, Ankara, TÜRKIYE, **Supervisor:** Prof. Dr. Saim ÖZKAR
Sept. 1998-July 2002	**B.Sc. in Chemistry (second honor degree)** Faculty of Art and Science, Çukurova University, Adana, Türkiye.

2. Professional appointments:

Professor (Tenured), December 2024-
Associate Professor, September 2018-2024
Department of Chemistry, College of Sciences, Koç University, Istanbul, Türkiye.
Associate Professor, January 2014-August 2018
Department of Chemistry, Faculty of Science, Atatürk University, Erzurum, Türkiye.
Assistant Professor, February 2011- January 2014
Department of Chemistry, Faculty of Science, Atatürk University, Erzurum, Türkiye.
Post-Doctoral Research Associate, June 2012- June 2013
Department of Chemistry, Brown University, Providence, RI 02906, USA
Supervisor: Prof. Dr. Shouheng Sun
TUBİTAK Research Project Fellow, July 2012-October 2012
Inorganic Chemistry Institute, Technical University of Darmstadt, Darmstadt, Germany.
Host Scientist: Prof. Dr. Jörg J. Schenider
TUBITAK 2214 Research Fellow, June 2009-December 2009
Department of Chemistry, Brown University, Providence, RI 02906, USA
Host Scientist: Prof. Dr. Shouheng Sun
Teaching/Research Assistant, April 2004- February 2011
Department of Chemistry, Middle East Technical University, Ankara, Türkiye.

3. Academic awards, honors, and fellowships:

1. Elected Associate Member of Turkish Academy of Sciences (TUBA), **2021-2026 (Second term).**
2. Koç University Outstanding Faculty Award, **2020**.
3. The Scientific and Technological Research Council of Türkiye (TÜBİTAK) "*Research Encouragement Award*", **2017**.
4. Scientific Heroes Association, "*The Scientist of the Year Award*", **2017.**
5. Science Academy, "*The Outstanding Young Scientists Award" (BAGEP), **2017***.
6. Tsinghua University Press "*Nano Research Top Papers Award*", **2016 and 2017**.
7. Atatürk University Rectory Scientific Encouragement Program "*The First Rank of the Total Citation Category*", **2016.**
8. Feyzi Akkaya Science Foundation (FABED), *"Eser Tumen Outstanding Young Scientist Award"*, **2015.**
9. The Prize Given for the Horizon-2020 Project Proposals Being above the Threshold of Consciousness, TUBITAK, **2015.**
10. Atatürk University Rectory Scientific Encouragement Program "*The First Rank of the Highest Impact Factor Paper Category*", **2015.**
11. Turkish Academy of Sciences "*The Outstanding Young Scientists Award*" (TÜBA-GEBİP), **2014**.
12. Atatürk University Rectory Scientific Encouragement Program "*The First Rank of the Highest Impact Factor Paper Category*", **2014.**
13. Middle East Technical University Prof. Dr. Mustafa N. PARLAR Education and Research Foundation Awards "*Research Encouragement Award*", **2013**.
14. Atatürk University Rectory Scientific Encouragement Program "*The First Rank of the Highest Impact Factor Paper Category*", **2013.**
15. The Scientific and Technological Research Council of Türkiye Fellow to attend "*63rd Lindau Nobel Laurates Meeting*", Lindau, Germany, **2013.**
16. The Post-Doctoral Research Associate, Department of Chemistry, Brown University, **(2012-2013).**
17. The 9th of Serhat ÖZYAR '*Young Scientist of the Year Prize*', Middle East Technical University **(2011).**
18. TUBITAK 2214-Research Fellow for Studying Abroad during Ph.D., **2009.**

4. Research Interests:

The motto of my research group is "*Nano(photo)catalysts for sustainable energy and chemistry*". With this motto, my research group conducts research on the following topics.

Transition metal nanoparticles: Controlled synthesis of monometallic and bimetallic alloy or core-shell nanoparticles for various catalytic applications.

2D Materials and their heterojunctions: Synthesis of various 2D materials including reduced graphene oxide, mesoporous graphitic carbon nitride, molybdenum disulfide (MoS_2), tungsten disulfide, black phosphorus, bismuthene and their hybrids to develop heterojunctions for using them as support material for the transition metal nanoparticles or non-metallic photocatalysts in diverse applications.

Nanocomposites: Preparation and characterization of different types of novel nanocomposites comprising the 2D materials and metal/metal oxide nanoparticles for various applications.

Nanocatalysis/Heterogeneous Catalysis: application of transition metal-based nanocatalysts in various organic and inorganic transformations for the development of sustainable energy and chemistry.
Photocatalysis: The design and fabrication of novel (nano)photocatalysts and their photocatalytic applications in hydrogen production, energy conversion and storage, organic synthesis, wastewater treatment and CO_2/N_2 conversion.
Heterojunction photocatalysts: The rational design and synthesis of heterojunction photocatalysts composed of 2D semiconducting materials, other semiconductor materials and metal nanoparticles for various photocatalytic applications.
Photoredox catalysis: Various chemical transformations proceeding on C-H functionalization by using semiconducting 2D materials and their heterojunctions as photoredox catalysts.
Catalytic reactions: Dehydrogenation of B-N-H compounds (ammonia-borane, hydrazine borane and morpholine borane), formic acid dehydrogenation, sustainable organic transformations (transfer hydrogenation, C-C coupling reactions, C-H functionalization, and etc), and development of energy and cost-efficient methods in organic synthesis in the context of green chemistry.
Electrochemical studies: Electrode design and fabrication for the universally important reactions such as oxygen reduction reaction (ORR), hydrogen evaluation reaction (HER), oxygen evolution reaction (OER) and the electrochemical CO_2 reduction.
Rechargeable Lithium batteries and Fuel Cells: Preparation of active electrode materials for the high-performance rechargeable Lithium (Li-ion and Li-air) batteries and PEM fuel cells.

5. Services:

5.1. Community Services

Section Editor (Catalysis), Encyclopedia of Green Chemistry, Elsevier Publishing, ISSBN: 9780443289231
Editorial Board Member, Catal (Springer Nature Publishing, A newly launched journal), September 2024-
Editorial Board Member, Scientific Reports (Springer Nature Publishing, IF: 3.8, Q1 Journal), August 2024-
Committee member, IUPAC Solvay Awards, 2024-
Editorial Board Member, Tungsten (Springer, IF: 6.45, Q1 Journal (Materials Chemistry), January 2024-
Editorial Board Member, cMat, (Wiley, A newly launched journal), 2024-
Secretary General, Federation of Asian Chemical Societies (FACS), 2023-2025.
Titular member, IUPAC Inorganic Chemistry Division (Division II), January 2024-2026.
Secretary General; 19th Asian Chemical Congress (ACC2023), July 9-14, 2023.
Vice-president; Turkish Chemical Society**,** May 2023-
Mentor; Türkiye Team, 56th International Mendeleev Chemistry Olympiads, 09-15 May 2022, Tashkent, Uzbekistan.
Associate Editor-in-Chief; Turkish Journal of Chemistry (TÜBİTAK), 2022-
Guest Editor, Materials Today Proceedings, 2022.
National Representative; IUPAC Inorganic Chemistry Division (Division II)**,** 2019-2021, 2021-2023.
Mentor; TÜBİTAK 2248- Mentoring Support Program for Outstanding Chemistry Undergraduate students, 2020-

Scientific Member; Virtual Chemistry Laboratory Development Team, The Higher Education Council of Türkiye (YÖK).
Scientific Committee Member and a scientific author; The 52rd International Chemistry Olympiads (IChO 2020), 23-29 July 2020, Istanbul, Türkiye.
Vice-chair; 32rd National Chemistry Congress-Online, September 17-19, 2020.
Secretary General Elect; Federation of Asian Chemical Societies (FACS), 2019-
Executive Board Member; Federation of Asian Chemical Societies (FACS), Dec 2019-
Mentor; Turkish Student Team, 51st International Chemistry Olympiads, 21-30 July, Paris, France
Executive Board Member of Turkish Chemical Society, 2018-
Advisory Board Member, TÜBİTAK ARDEB KBAG**,** 2017-2019
Subject Editor, Turkish Journal of Chemistry, 2013-2022.
Control Commission Member, Turkish Catalysis Society, 2013-2017
Vice-Chair: East Anatolian High Technology Research and Application Center (DAYTAM), 2015-2017
Academic Consultant, City of Adana Water and Sewerage Works Management (ADANA ASKİ), 2015-2017.

5.2. Reviewer Activities

Serving as a reviewer for the scientific Awards: i) Turkish Academy of Sciences (TUBA), "Outstanding Young Scientist Award (GEBIP)", every year starting from 2018. **ii)** The Scientific and Technological Research Council of Türkiye (TUBİTAK) Academic Encouragement Award, **2023**. **iii)** The Science Academy, "Outstanding Young Scientist Award (BAGEP)", **2024**.
Serving as a reviewer for the evaluation of scientific project proposals: i) I have reviewed more than 250 projects for the Scientific and Technological Research Council of Türkiye (TUBİTAK), starting from 2012. ii) Poland National Science Center (NCN), **2022**.
Manuscript review: Nature Publishing Journals (Nature Communications and Scientific Reports), ***ACS Journals*** (Journal of the American Chemical Society, ACS Nano, ACS Catalysis, Chemistry of Materials, ACS Applied Materials&Interfaces, ACS Applied Nano Materials, ACS Applied Energy Materials, Industrial&Engineering Chemistry Research, Journal of Physical Chemistry C, ACS Sustainable Chemistry&Engineering, Crystal Growth&Design, Langmuir, Journal of Organic Chemistry), ***Wiley Journals*** (Angewandthe Chemie International Edition, Small, Advanced Functional Materials, Advanced Materials, Applied Organometallic Chemistry, ChemCatChem, ChemSusChem, ChemistrySelect, Chemistry: A European Journal, Energy and Environmental Materials), ***RSC Journals*** (Chemical Scince, ChemComm, Energy&Environmental Science, Nanoscale, Journal of Materials Chemistry A, Journal of Materials Chemistry C, New Journal of Chemistry, Catalysis Science&Technology, RSC Advances, Inorganic Chemistry Frontiers, Materials Chemistry Frontiers), ***Elsevier Journals*** (Applied Catalysis B: Environmental, Applied Catalysis A: General, International Journal of Hydrogen Energy, Catalysis Today, Applied Surface Science, Chemical Engineering, Materials&Design, Surfaces&Interfaces, Sustainable Chemistry and Pharmacy, Composites Part B, Chemical Engineering Journal, Journal of Cleaner Production), *Springer Journals* (Reaction Kinetics, Mechanism, and Catalysis, Catalysis Letters, Topics in Catalysis).
(**Number of the reviewed manuscripts:** *30 manuscripts in 2013, 49 manuscripts in 2014, 40 manuscripts in 2015, 40 manuscripts in 2016; 58 manuscripts in 2017; 50 manuscripts in 2018, 52 manuscripts in 2019, 35 manuscripts in 2020, 42 manuscripts were reviewed in 2021, 35 manuscripts were reviewed in 2022, 32 manuscripts reviewed in 2023, 25 manuscripts have been reviewed in 2024*).

5.2. Academic Services

Post-docs Mentoring

1) **Dr. Dilek Korcoban**, April 2024-
2) **Dr. Zafer Eroğlu**, November 2022-,
3) **Dr. Natarajan Palani**, 2022-2023, EU-supported 2236-CoCirculation Brain Funding Program, Panjab University, India.
4) **Dr. Johann Bosson**, 2021-2023, EU-supported 2236-CoCirculation Brain Funding Program
5) **Dr. Melek Şermin Özer**, 2020-
6) **Dr. Sibel Erken Korkut**, Yıldız Technical University, 2019-2023
7) **Dr. Orhan Altan,** Mersin University, 2019-2021
8) **Dr. Erbay Kalay,** Kars Kafkas University, 2019-2020
9) **Dr. Sepideh Behboudikhuevi,** KU Leuven University**,** 2019-2020
10) **Dr. Paria Eghbali,** Girne American University, 2017- 2018.

Supervised Thesis (completed):
Ph.D. Thesis

1) **Melike Sevim,** The Development of High-Performance Electrode Materials for Rechargeable Lithium Batteries, **09 February 2018.**
2) **Hasan Can,** Bimetallic **M**Ru (**M:** Co, Ni, Cu) Alloy Nanoparticles: Synthesis, Characterization and Catalytic Applications, *Ph.D. Thesis*, **01 August 2019.**
3) **Merve Aksoy,** Development of Highly Efficient Platinum Nanocatalysts for the Dehydrogenation of Ammonia Borane via Rational Design of Graphitic Carbon Nitride-Based Heterojunction Photocatalysts, *Ph.D. Thesis***, 09 July 2021.**
4) **Ibtihel Zaier,** Metal Nanoparticles Supported on Graphene Hydrogel: One-pot Synthesis and Catalytic Efficiency in Hydrogen Production from Hydrolysis of Ammonia Borane, *Ph.D. Thesis***, 17 December 2021.**
5) **Zafer Eroğlu,** The Synthesis Of Metal-Free Quantum Dots And The Design Of Their Heterojunctions With 2D Materials For Photocatalytic Applications**,** *Ph.D. Thesis***, August 12, 2022.**
6) **Yunus Zozik,** The Synthesis Of Bimetallic M-Pd (M: Co, Ni, Cu) Alloy Nanoparticles Supported On Magnetically Recoverable Reduced Graphene Oxide and Investigation Of Their Catalytic Performance in C-H Arylation Reactions, *Ph.D. Thesis***, November 25, 2022**.
7) **Diren Kılıç,** Evaluation of photocatalytic activity of mesoporous G- C3N4 based composite materials in removal of some organic contaminants from waste-water, **June 20, 2023.**
8) **Begümhan Karapınar Koç,** Rational Design of Heterogeneous Photocatalysts for the Tandem Photocatalytic Hydrogen Evolution and Transfer Hydrogenation Reactions Using Water as the Hydrogen Source**, July 09, 2024.**
9) **Ahmet Emre Kasapoğlu,** Development of New Wet-Chemical Methods for the Synthesis of M-Selenide (M: Cu, Zn, Ga, and In) Nanoparticles**, August 5, 2024.**

Master Thesis

1. **Buket Kılıç,** Pd Nanoparticles Supported on Reduced Graphene Oxide: Preparation, Characterization and Catalytic Activity For Hydrolytic Dehydrogenation of Ammonia Borane *MSc Thesis*, **08 June 2012**.
2. **Hasan Can,** A Facile Synthesis of Nearly Monodisperse Ruthenium Nanoparticles and Their Catalysis in The Hydrolytic Dehydrogenation Of Ammonia Borane for Chemical Hydrogen Storage, *MSc Thesis*, **10 July 2013**.
3. **Sümeyra Diyarbakır,** Monodisperse Copper-Palladium Alloy Nanopartıcles Assembled on Reduced Graphene Oxide as Highly Effective Catalysts for the Sonogashıra Cross-Coupling Reactions, *MSc Thesis,* **27 December 2014.**
4. **Nesibe Sedanur Çiftçi**, Monodisperse Nickel-Palladium Alloy Nanoparticles Supported on Reduced Graphene Oxide as Highly Efficient Catalysts for the Hydrolytic Dehydrogenation of Ammonıa Borane, *MSc Thesis,* **02 January 2015.**
5. **Katip Korkmaz,** Tandem Dehydrogenation of Ammonia Borane and Hydrogenation of Nitro/Nitrile Compounds Catalyzed by Graphene-Supported NiPd Alloy Nanoparticles, *MSc Thesis***, 08 January 2015.**
6. **Kübra Güngörmez,** Cu3Pd Alloy Nanoparticles Supported on Reduced Graphene Oxide as Active and Economical Catalysts for the Hydrolytic Dehydrogenation of Ammonia Borane, *MSc Thesis,* **15 January 2015.**
7. **Gülşah Çelikdağ,** The Synthesis Of Magnetic Cobalt Ferrite/Graphene Oxide And Cobalt Ferrite/Reduced Graphene Oxide Nanocompozites, Their Characterization And Application In The Dye Removal From Aqueous Solution, **12 August 2016.**
8. **Seda Ergen,** Monodisperse AgPd Alloy Nanoparticles Supported on Mesoporous Graphitic Carbon Nitride as Highly Efficient Catalyst for the Reductive Amination of Nitroarenes via Transfer Hydrogenation, *M.Sc. Thesis,* **March 2018.**
9. **Tuğba Karaca**, A Facile Synthesis of Monodisperse CuPt Alloy Nanoparticles and Their Superb Catalysis in the Hydrolytic Dehydrogenation of Ammonia Borane and Hydrazine Borane, *M.Sc. Thesis*, **July 2018.**
10. **Muhammet Turgut,** Three-Component Cascade Reaction in a Pressure Tube: In-situ Generation of Palladium Nanoparticles Supported on Mesoporous Graphitic Carbon Nitride, Dehydrogenation of Ammonia Borane and Hydrogenation of Nitroarenes, *M.Sc. Thesis*, **August 2018.**
11. **Buse Sündü,** The synthesis of monodisperse NiRu alloy nanoparticles as catalyst for the dehydrogenation of morpholine borane, *M.Sc. Thesis,* **October 2018.**
12. **Dilan Aksoy (Co-supervisor),** Rational Design of Silver/Platinum Core/Shell Nanoparticles as Catalysts for Electrochemical Hydrogen Production and Oxygen Reduction Reaction, *M.Sc Thesis,* **August 2019.**
13. **Hüseyin Küçükkeçeci,** Design and Synthesis of a Black Phosphorus-Based Heterojunction Photocatalyst for Hydrogen Generation from Methanolysis of Ammonia Borane, *M.Sc. thesis***, July 2020.**
14. **Ahsen Sare Yalın,** Mesoporous Graphitic Carbon Nitride Supported CoPd Alloy Nanoparticles as Catalysts for Various Reactions of Terpenes, *M.Sc. Thesis***, August 12, 2022.**
15. **Sıla Alemdar,** Graphitic Carbon Nitride/Red Phosphorus Heterojunctions Decorated with Platinum Nanoparticles as Catalysts for the Photo-assisted Hydrolysis of Ammonia Borane, *M.Sc. Thesis,* **March 29, 2023,**

16. **Temirlan Kurbanaliev,** Design of a Metal-Free Heterogeneous Photocatalyst for Sustainable Organic Transformations: The Role of N-Vacancies in Graphitic Carbon Nitride, *M.Sc. Thesis* **August 11, 2023.**
17. **Aleyna Başak,** Graphitic Carbon Nitride/Oxygen Deficient Tungsten Oxide S-Scheme Heterojunctions for the Photocatalytic Methyl Orange Degradation and Hydrogen Peroxide Generation under Visible Light Irradiation, *M.Sc. Thesis*, **December 2023**.

Supervised Thesis (On-going):

1. **Buse Sündü,** *Ph.D. candidate*, Two-Dimensional Semiconductor Pnictogens: Next-Generation Photocatalysts for Solar-Driven Sustainable Organic Transformations, **February 2020-February 2025**.
2. **Ecem Ezgi Özkahraman,** *Ph.D. candidate*, Rational design of nanomaterials as non-enzymatic glucose sensors, **February 2021-**
3. **Tuana Ayla Demircioğlu,** *Ph.D. student*, Arsenene: Bottom-Up Synthesis and Photocatalytic Performance in the C–H Bond Functionalization of Heteroarenes, **September 2022-,**
4. **Beyza Nur Karakoç,** Metal Organic Frameworks-Two-Dimensional Pnictogeneous Heterojunction Photocatalysts as Catalysts for C-H Functionalization, *M.Sc. student*, **September 2023-**
5. **Ayman Batuhan Yıldız,** *M.Sc. student*, **September 2023-**
6. **Zaid Emara,** *M.Sc. student***, February 2024,**
7. **Masoud Zabihi Nezhad, September 2024,**

6. TEACHING ACTIVITIES

I have thought many courses both at undergraduate and graduate levels for 10 years. The summary of all of my teaching activities in the last decade is given below.

- ***Inorganic Chemistry I, II*** (Undergraduate level, 2011-2018 every year Fall and Spring semesters, avg. 40 students/per semester) at Department of Chemistry, Atatürk University, Türkiye
- ***Advanced Inorganic Chemistry*** (Graduate level, 2011-2018 every year Fall and Spring semesters, avg. 10 students/per semester) at Department of Chemistry, Atatürk University, Türkiye.
- ***General Chemistry*** (Undergraduate level for School of Medicine and College of Engineering students, 2018-2022, 2023 and 2024 every year Fall and Spring semesters, avg. 65 students) at Department of Chemistry, Koç University, Türkiye.
- ***Coordination Chemistry and Catalysis*** (Undergraduate level, Spring 2020, 6 students), at Department of Chemistry, Koç University, Türkiye.
- ***Advanced Inorganic Chemistry*** (Graduate level, Spring 2019, 20020, 2021, 2022, 2023, and 2024 avg. 10 students) at Department of Chemistry, Koç University, Türkiye.
- ***Advanced Instrumental Techniques for Materials Characterization*** (Graduate level, Fall2022 22 students, Fall2023 26 students, Fall 2024 25 students) at Graduate School of Science and Engineering, Koç University, Türkiye.
- ***Inorganic Chemistry*** (Undergraduate level, Spring2020 and 2024, avg. 15 students/per semester) at Department of Chemistry, Koç University, Türkiye.
- Besides these teaching activities at universities, I have also taught Inorganic Chemistry for the National/International Chemistry Olympiad students for 8 years. I am also an active

author for preparing problems for the National/International Chemistry Olympiad exams.

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7. INSTITUTIONAL RESPONSIBILITIES

2023-2024 Member of the Faculty Board, College of Sciences, Koç University, Türkiye.
2023- Chemistry and Materials Science&Engineering Program coordinator, Graduate School of Science and Engineering (GSSE), Koç University, Türkiye.
2020–2024 *Organizer of the Departmental Seminars*, Dept. of Chemistry, Koç University, Türkiye.
2024-2026 Titular Member Division II (Inorganic Chemistry), IUPAC.
2019-2024 *National Representative*, Division II (Inorganic Chemistry), IUPAC
2023 –2025 *Secretary General*, Federation of Asian Chemical Societies (FACS)
2019 –2023 *Secretary General Elect*, Federation of Asian Chemical Societies (FACS)
2018 – *Member of the Executive Board*; Turkish Chemical Society, Türkiye.
2016 – 2018 *Member of the Faculty Committee*, Faculty of Science, Atatürk University.
2016 – 2018 Advisory Board Member, Chemistry Research Group, TUBITAK.
2016 – 2018 *Vice Chair*, East Anatolian Application and Research Center (DAYTAM), Atatürk University, Türkiye.
2019 – 2020 *Scientific Committee Member*, 52rd Int. Chemistry Olympiads (IChO 2020), Istanbul, Türkiye.

8. MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2015– Turkish Chemical Society (TCS)
2018- International Union of Pure and Applied Chemistry (IUPAC)
2019- Federation of Asian Chemical Societies (FACS)
2022- American Chemical Society (ACS)

9. Projects/Grants

Ongoing

1) **Principal investigator,** Rational Fabrication Of Metal Organic Framework (MOF)-Based Photocatalysts For The Upcycling Of Waste Plastics**,** TÜBİTAK- NSF China Bilateral Research Project, 124N973, 15/03/2025-15/03/2028
2) **Principal investigator,** Artificial Photosynthesis of Urea from Nitrogen and Carbon Photofixation**,** TÜBİTAK-Chinese Academy of Science (CAS) Bilateral Research Project, 224N063, 01/03/2025-01/03/2028
3) **Principal investigator,** Development of a Comprehensive Non-enzymatic Glucose Sensor Material Library through the Combination of Experimental and Computational Studies, TÜBİTAK-NRF Korea Bilateral Project, 124N866, 01/02/2025-01/02/2027
4) **Principal Investigator,** A Sustainable Strategy for Synthesizing Conjugated Porous Organic Frameworks, Air force Office of Scientific Research (AFOSR), USA, 2023-2026 (202K USD).
5) **Principal Investigator,** Two-Dimensional Semiconductor Pnictogens: Next-Generation Photocatalysts for Solar-Driven Sustainable Organic Transformations, TÜBİTAK 2247A-National Leader Researcher Support Program, 121C333, 2022-2025. (4.0 M TL)
6) **Principal Investigator,** Fabrication of Covalent Organic Frameworks-Based Noble Metal Single Atomic Site Photocatalytic Materials for the Photo-Assisted Lithium-Oxygen Battery,

TÜBİTAK-China National Science Foundation (NSF) Bilateral Research Project, 122N458, (2.0 M TL).

7) **Principal Investigator,** Rational design of 2D Pnictogen-MOF hybrids as photocatalysts for the visible light-mediated C–X (X ≡ C, N) bond forming reactions, TÜBİTAK-Chinese Academy of Science (CAS) Bilateral Research Project, 120N541, Feb 2023-Feb 2026 (1.8 M TL).
8) **Researcher,** Rational Design of Metal-Free P–, N–, S–Doped GQDs-based New Generation Heterojunctions for Selective Photooxidation of Organic Molecules under Visible Light and Their Mechanistic studies, TÜBİTAK 1001, 123Z056, 2023-2025. (1.2 M TL)
9) **Researcher,** Value-Added Advanced Nanotechnological Materials and Systems for Sustainable Circular Economy– Lignonano, 1004- Mükemmeliyet Merkezi Destek Programı, 22AG045, December 2022-December 2026. (20 M TL)
10) **Researcher,** The preparation of rationally designed Inverse-Opal-Based S-Scheme Heterojunction Photocatalysts for Solar Hydrogen Production, TÜBİTAK 1001, 123Z412, October 2023- October 2026 (1.7 M TL).
11) **Consultant,** Çok Fonksiyonlu Kabon Destekli Manyetik Ve Katalitik (Pdxm1-X)Y/(MFe2o4)100-Y (M=Co ve Ni) Nanoyapıların Geliştirilmesi, TÜBİTAK 1001 project, 123F475, July 2024-July 2027.
12) **Consultant,** Rational Design of Carbon Nitride-Based Photoredox Catalysts for α-C(sp3)-H Activation of Amines, TÜBİTAK 1001 project, 123Z407, November 2023- November 2025 (1.7 M TL).
13) **Consultant,** Investigation of All Activities of Monolayer Symmetrical and Non-Symmetrical Tmdc Structures with Controlled Surface Modifications, TÜBİTAK 1001, 122F023, April 2022- April 2025. (1 M TL)

Accomplished:

19) Consultant, Design and Synthesis of New Photocatalysts for the Co-Production of Hydrogen and gamma-valerolactone from Formic Acid/Levunilic Acid Mixture, TÜBİTAK 3501 Project, 2021-2023.

18) Consultant; Investigation of Effects Of Boric Acid and Zinc Borate-Containing Graphene Hydrogels in Second Degree Burn Healing in Rats, TÜBİTAK 1001 Project, 2020-2022.

17) Principal Investigator, The Design and Synthesis of Black Phosphorus Based Heterojunction Photoredox Catalysts for the C-H Arylation of Heteroarenes under Visible Light Irradiation, TÜBİTAK 1001, 120Z622, 2021-2023. (789,000,00 TL)

16) Researcher; The Synthesis of Nano Lithium Nickel Cobalt Oxide (NCA) Material as Cathode Materials for Li-ion batteries, TÜBİTAK 1003 Project, 118M149, 2019-2022.

15) Researcher; Synthesis of Mesoporous Graphitic Carbon Nitride/Black Phosphorus/Metal Sulfide (mpg-mpg-C_3N_4/BP/MS_2 (M:Mo,W) ve mpg-C_3N_4/BP/MS_2-Y (Y:Ni,Co, M:Mo,W) Nanohybride Materials and Investigation of Hydrogen Evolution Performances from Photocatalytic Water Splitting, 119Z497 2020-2022. (689,000,00 TL)

14) Principal Investigator, A facile route to in situ synthesis of mesoporous graphitic carbon nitride (mpg-C_3N_4) supported metal nanoparticles as catalysts for the conversion of terpenes into the value-added products**,** TÜBİTAK-Morocco Bilateral Project, 119Z199, 2020-2022. (770,000 TL)

13) Consultant; The Synthesis of Bimetallic M-Palladium (M: Co, Ni, Cu) Alloy Nanoparticles Supported on Magnetically Recoverable Reduced Graphene Oxide and Investigation of Their

Catalytic Performance in C-H Arylation/Alkylation Reactions, TÜBİTAK 1001 Project, 118Z724, 2019-2021. (589,000 TL)

12) Principal Investigator, Covalent Functionalized Black Phosphorous as a Novel Nanoplatform for the Cancer Theranostics, Koç University Seed Funding Program, 2019-2021. (50,000 TL)

11) Principal Investigator; Bimetallic Ruthenium Alloy Nanoparticles Supported on Graphene as Highly Efficient, Economical and Reusable Catalysts: Synthesis, Characterization and Catalytic Applications, TÜBİTAK 1001 Project, 116Z226, 2017-2019 (367,367.00 TL)

10) Researcher; Synthesis, Characterization of N-heterocyclic Carbene-Stabilized Metal Nanoparticles and Their Catalytic Applications, TÜBİTAK 1001 Project, 116Z189 2017-2019, (254,161 TL)

9) Principal Investigator, Polymer stabilized transition metal nanoclusters as catalysts, METU BAP-08-11-DPT2002K120510, 2006-2010 (Bütçe: 40,000 TL)

8) Principal Investigator; Palladium Nanoparticles Supported on Chemically Derived Graphene: Synthesis, Characterization and Catalytic Activity in the Dehydrogenation of Ammonia Borane, Atatürk University Research Projects Council, 2011-2013 (35,000 TL).

7) Principal Investigator; Synthesis and Characterization of FeAuPd and FeAgPd Alloy Nanoparticles as Catalyst for the Formic Acid Dehydrogenation under Mild Conditions, Atatürk University, Research Projects Council, 2013-2015. (35,000 TL).

6) Principal Investigator; Synthesis and Characterization of Monodisperse Alloy and Core-Shell Bimetallic Palladium Nanoparticles and Their Catalysis for the Selective Reduction of Nitroarenes via Transfer Hydrogenation, TÜBITAK Career Project, 2013-2015. (205,000 TL).

5) Principal Investigator; The Synthesis of Magnetically Recoverable Graphene/Graphene oxide Base Nanocomposites and Their Performance in the Organic Dye Removal From Aqueous Solution, Atatürk University Research Projects Council, 2016-2018 (30,000 TL).

4) Consultant; Carbon-Based Tandem Broadband Photocatalytic Nano-Architectures, TÜBİTAK 1001 Project, 2017-2019 (230,000 TL)

3) Researcher; Determination of zinc, one of the vital bioelements, with spectrofluorimetric method by using the $Fe_3O_4/SiO_2–NH_2$ nanocomposite functionalized with Znpyr-1 ligand in artificial saliva, TÜBITAK 3001 Project, 2015-2017, (60,000 TL)

2) PhD Fellow, Water Soluble Polymer-Stabilized Nickel(0) and Cobalt(0) Nanoclusters: Synthesis, Characterization and Catalytic Use, TÜBİTAK 1001 Project, 2008-2010 (98,000 TL)

1) PhD Research Fellow; TÜBİTAK-107M447- INTEN-C projesi, 2010.

10. Invited Talks:

1) Hydrogen Production from Chemical Hydrogen Storage Materials Using Transition Metal Nanocatalysts, ***Department of Chemistry, Brown University***, 21 November 2012.

2) Drinking Water Disinfection Technologies***, 1st Adana Water Summit,*** 22 March 2015 (World Water Day), Adana, Türkiye.

3) Composition-Controlled Catalysis of MPd (M: Fe, Co, Ni, Cu) Alloy Nanoparticles, ***V. National Inorganic Chemistry Congress***, 22-25 April 2015, Mersin, Türkiye.

4) Transition Metal Nanoparticles as Catalysts, ***27. National Chemistry Conference,*** 23-28 August 2015, Çanakkale, Türkiye.

5) Catalysis with Transition Metal Nanoparticles, Department of Chemistry, Gebze Technical University, 21 January 2016, Gebze, Türkiye

6) Are we drinking a water or poison? The Chemistry and Importance of Drinking Water Disinfection**, *2nd Adana Water Summit,*** 22 March 2016 (World Water Day), Adana, Türkiye.
7) Nanocatalysis: From Theory to Applications, Nanotechnology Research and Application Center, Sabancı University, 06 May 2016, İstanbul, Türkiye
8) Selective reduction of nitroarenes to anilines via facile transfer hydrogenation reactions catalyzed by reduced graphene oxide supported bimetallic MPd (M: Fe, Co, Ni,) alloy nanoparticles**,** Peking University, 06 July 2016, Bejing, China.
9) Nanocatalysts In A Wide-Range Application Spectrum: From Organic Synthesis To Energy Storage**,** 28th National Chemistry Congress, 15-21 August 2016, Mersin, TÜRKIYE.
10) Reduced Graphene Oxide as a Versitale Support Material for the Nanocatalysts, 3rd Emerging 2D Materials&Graphene Conference, 20-21 October 2016, İstanbul, Türkiye.
11) Nanocatalysis: From Theory to Applications, Department of Chemistry, Bilkent University, 08 November 2016, Ankara, Türkiye
12) Catalysis by Transition Metal Nanoparticles, Department of Chemistry, Çukurova University, 25 January 2017, Adana, Türkiye.
13) Rational Design of Transition Metal Nanoparticles for a Wide-Range of Catalytic Applications, Department of Chemistry, Faculty of Science&Engineering, Koç University, 23 February 2017, İstanbul, Türkiye.
14) Bimetallic Alloy Nanoparticles Supported on Reduced Graphene Oxide as Cathode Catalysts for the Lithium-Oxygen Battery, 14th International Conference on Energy Storage (EnerStock2018), 25-28 April 2018, Çukurova University, Adana, Türkiye.
15) Rational Design of Transition Metal Nanoparticles for a Wide-Range of Catalytic Applications, ICANAS 2018, 9-12 May 2018, Antalya, Türkiye.
16) Nanocatalysts for Energy Storage and Conversion Systems as the Solution of Global Energy Problems, Bursa Uludağ University, 10/04/2019, Bursa, Türkiye.
17) Nanocatalysts as the Key of the Sustainable Organic Synthesis and Energy Systems, Zonguldak Bülent Ecevit University, 12/04/2019, Zonguldak, Türkiye.
18) Nanocatalysts for Energy Storage and Conversion Systems, Marmara University, 22 October 2019, İstanbul, Türkiye
19) Global Energy Problems and the role of nanocatalysts for the development of efficient energy storage and conversion systems, Aydın Adnan Menderes University, 30 October 2019, Aydın, Türkiye.
20) Nanocatalysis: A key for the development of sustainable chemical methodologies and efficient energy systems, 3rd EastWest Chemistry Conference, 12-15 Nov 2019 University of Palermo, Palermo, Italy.
21) Rational Design of Transition Metal Nanoparticles For a Wide-Range of Catalytic Applications, the 18th Asian Chemical Congress (18th ACC), 7-12 December 2019, Taipei, Taiwan.
22) Hydrogen energy and fuel cells: from the current status and challenges to a vision on the future, 2020 Silk Road International Conference on the Cooperation and Integration of Industry, Education, Research and Application, 10-11 December 2020, China (online).
23) Nanocatalysts for Energy Storage and Conversion Systems, Tekirdağ Namık Kemal University, Faculty of Science, Department of Chemistry, 04/06/2021, Tekirdağ (Online).
24) Photocatalysis with Semiconductor 2D Materials and Their Heterojunctions, EastWest Chemistry Conference, October 7-9, 2021, Kiev, Ukraine, *online*.

25) Developing Visible Technologies Beneficial to Humanity with Invisible Nanomaterials, NanoFest 2021, Konya Science Center, Konya, Türkiye.
26) Photocatalysis with the Nanocomposites Comprising Non-metallic 2D Semiconductors and Metal Nanoparticles, World Congress on Applied Nanotechnology (W-CAN), November 24-26, 2021, Erzurum, Türkiye, *online*.
27) Photocatalytic Applications with Two-Dimensional Semiconductor Materials and Their Heterojunctions under Visible Light, December 24, 2021, Dicle Üniversitesi Kimya Bölümü, Diyarbakır, *online*.
28) The Rational Design of Heterojunction Photocatalysts for Hydrogen Production under Visible Light, 6th International Hydrogen Technologies Congress, January 23-26, 2022, Çanakkale Onsekiz Mart University, Çanakkale, Türkiye, *hybrid*.
29) Solar-driven Hydrogen Production via Rationally Designed Heterostructured Photocatalysts, mESC-IS 2022, 6th Int. Symposium on Materials for Energy Storage and Conversion, July 5-8, 2022, Bol, Island of Brač, Croatia.
30) Developing Visible Technologies Beneficial to Humanity with Invisible Nanomaterials, National Chemistry Summit, October 08, 2022, Boğaziçi University, Garanti Cultural Center.
31) The Rational Design and Fabrication of Heterojunction Photocatalysts for Green Energy and Chemistry, ICANAS 2022, October 12, 2022, Ağrı İbrahim Çeçen University, online.
32) Sustainable Chemical Energy Transformations with Heterojunction Photocatalyts, New Frontiers of Natural Sciences (NFNS): The 1st Selçuk Meeting, October 17-19, 2022, Selçuk University, Konya, Türkiye.
33) Development of Advanced Technologies Beneficial to Humanity with Nanomaterials, Science Heros Society, November 23, 2022, Online.
34) Rational Design of Heterostructured Photocatalysts for Sustainable Chemical Conversions, Pure and Applied Chemistry: International Conference, January 20-21, 2023, Chiang Rai, Thailand.
35) Development of Sustainable Chemical Conversions Using Rationally Designed Nanomaterials as Heterogeneous (Photo)Catalysts, 10th International Conference on Materials Science and Nanotechnology for Next Generation, MSNG2023, 27–29 September 2023 Erciyes University, Kayseri, TÜRKİYE.
36)
37) Development of Sustainable Technologies via Catalysts, Turkish Academy of Science University Conferences, November 3, 2023, Süleyman Demirel University, Isparta, Türkiye.
38) Catalyzing Sustainable Technologies, Turkish Academy of Science University Conferences, November 17, 2023, Harran University, Urfa, Türkiye.
39) Rational Design of Hetero-structured Photocatalysts for Sustainable Chemical Conversions, January 15, 2024, Peking University School of Materials Science&Engineering, Beijing, China.
40) Heterojunction Photocatalysts for Sustainable Chemical Conversions, January 18, 2024, University of Science and Technology China (USTC), Department of Chemistry and Materials Science, Hefei, China.
41) Heterojunction Photocatalysts for Sustainable Chemical Conversions, January 19, 2024, Jiangxi Normal University, Department of Chemistry, Nanchang, China.
42) Two-dimensional (2D) Semiconductors and Their Heterojunctions as Photocatalysts for Sustainable Chemical Conversions**,** *EngSurfTwin Conference***,** February 7, 2024**,** Selcuk University, Konya, Türkiye.

43) Heterojunctions of Two-dimensional (2D) Semiconductors as Photocatalysts for Hydrogen Production and Environmental Remediation, *2nd International Workshop on Solar Fuel (IWSF2),* April 13-15, 2024, Wuhan, China, Keynote Lecturer (online).
44) Development of the Sustainable Technologies with Catalysts and Circular Economy, Turkish Academy of Science University Conferences, May 03,' 2024, Sivas Cumhuriyet University, Sivas, Türkiye.
45) Development of Sustainable Energy Technologies by Using Nanomaterials, Turkish Academy of Science University Conferences, May 17, 2024, Çanakkale 18 Mart University, Çanakkale, Türkiye.
46) Federation of Asian Chemical Society: Linking Chemists in the Asia-Pacific Region, Chemist Leadership Forum, 34th Chinese Chemical Soceity Congress, June 16, 2024, Guangzhou, China.
47) Synthesis of Monodisperse Transition Metal Nanoparticles and Supported Metal Nanocatalysts, 7th Anatolian School of Catalysis, September 2, 2024, İzmir Institute of Technology, Urla, İzmir.
48) Sustainable Synthesis of Heterocyclic Compounds via Heterogeneous (Photo)Catalyzed Carbon-Hydrogen (C-H) Bond Functionalization, 35th National Chemistry Congress, September 9-12, Dicle University, Diyarbakır, Türkiye.
49) Rational Design of Heterojunction Photocatalysts for Sustainable Chemical Conversions, 134th Annual Meeting of the Koeran Chemical Society, October 16-19, 2024, Daegu, Korea.
50) Development of Sustainable Energy Technologies by Using Nanomaterials, Turkish Academy of Science University Conferences, November 29, 2024, Van Yüzüncü Yıl University, Van, Türkiye.

Publications

12.1. Patents

1) Önder Metin, Melek Sermin Özer, Zafer Eroğlu, Bismuthene as a Versatile Photocatalyst Operating Under Variable Conditions for The Photoredox C–H Bond Functionalization, Patent application, Application No: PCT/TR2022/050454.
2) Merve Gozel, Sibel Eken Korkut, Murat Hasanreisoglu, Onder Metin, Graphitic Carbon Nitride/Black Phosphorus (gCN/BP) Heterojunctions as Efficient Photodynamic Therapy Agent for Retinoblastoma, Patent application submitted.

12.2. Book and book chapters

1) Orhan Altan, Zafer Eroğlu, Hüseyin Küçükkeçeci, Önder Metin, "*Black Phosphorous-Based Photocatalysts for the Energy and Environmental Applications"* in "*Nanostructured Photocatalysts From Fundamental to Practical Applications, Eds: V-H. Nguyen, D-V. N. Vo, S. Nanda,* Elsevier Science Publishing Co Inc., 25 July 2021, ISBN: 9780128230077.
2) Önder Metin, Heterogeneous Catalysis: A Key Tool in Green Chemistry, Encyclopedia of Green Chemistry, Ed: Bela Török, Elsevier Science Publishing Co Inc., 15 Januray 2025, ISBN: 9780443289231.

12.3. Journal Publications (in reverse chronogical order)

Total Citations (Web of Science)= 8441, h-index= 47 (as of March 11, 2025). Web of Science ResearcherID: X-2448-2019

Total Citations (Scopus)= 8911, h-index= 49 (as of March 11, 2025). Scopus Author ID: 18536928800

Total Citations (Google Scholar)= 10252, h-index= 52, i-index= 121 (as of March 11, 2025). *https://scholar.google.com.tr/citations?user=P5_R0pwAAAAJ&hl=en*

(1 paper ≥ 1000 citations, 2 papers ≥ 500 citations, 3 papers ≥ 400 citations, 10 papers ≥ 200 citations, 26 papers ≥ 100 citations, 50 papers ≥ 50 citations)

ORCID ID: https://orcid.org/0000-0003-1622-4992

Corresponding Author

Under review

161. Ecem E. Özkahraman, Zafer Eroğlu, Vladimir Efremov, Arooba Maryyam, Taher Abbasiasl, Ritu Das, Hadi Mirzajani, Berna Akgenc Hanedarg, Levent Beker, **Onder Metin***, High performance Black Phosphorus/Graphitic Carbon Nitride Heterostructure-based Wearable Sensor for Real-time Sweat Glucose Monitoring, *Advanced Materials Technologies*, **2025**, *under review*.

160. Aleyna Başak, Zafer Eroglu, Melek Sermin Özer, **Önder Metin*,** Elucidating Bottlenecks in the g-CN/WO_{3-x} Catalyzed Photocatalytic H_2O_2 Generation by Revealing the Synergistic Effects of S-Scheme Heterojunction and Plasmon-Induced Hot Electron, **2025**, *Langmuir, under review*.

159. Melek Sermin Özer, Zafer Eroglu, Sermet Koyuncu, **Önder Metin*,** A Revolutionary Synthesis of Conjugated Porous Organic Polymers via Retro Diazotization Chemistry, *Angew.Chem.Int.Ed.*, **2025**, *under review*.

158. Ilknur Işık, Zafer Eroglu, Doğan Kaya, Faruk Karadağ, Ahmet Ekicibil, **Önder Metin***, A facile synthesis of ternary PtCuNi nanoalloys as catalysts for the hydrogen evolution and oxygen evolution reactions both in alkaline and acidic media, *Rare Metals*, **2025**, *under review*.

157. Xiaohan Yang, Ruixin Yang, Xuanzhao Lu, Yue Cao, Peng Ye, Long Zhang, Kai Li, Zhe Li4, Yujing Jiang, Juan Liu, Yuanzhen Zhou, Zafer Eroglu, Bing Wu, Önder Metin, Yang Zhou, Wenlei Zhu, Heterojunction and Homojunction Engineering on Multi-Shelled Confinement Structure for CO2 Photoreduction to CH_4, *Nano Letters*, **2025**, *revised manuscript is being prepared.*

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156. Muhammad Hassnain , Laure van Hofwegen , Humeyra Kaleli , Temirlan Kubanaliev, Zafer Eroglu , Saad Khan , Asim Onal, Guncem Eren , Murat Hasanreisoğlu , Payal Balraadjsing, Onder Metin, Fahri Alkan, Sebastianus Zaat, Sedat Nizamoglu, Ultra-Effective Light-Activated Antibacterial Activity via Carboxyl Functionalized Graphene Quantum Dots and Films, *Advanced Functional Materials*, , **2025**, 2421537.

155. Begümhan K. Koç, Gizem Yıldız, Sümeyra Can, İmren h. Patır, **Önder Metin***, One-pot Synthesis of the Red-Black Phosphorus/Pt-PtP2 Heterostructured Photocatalysts for the Tandem Hydrogen Evolution Reaction and Selective Hydrogenation of Nitroarenes to Azoxybenzenes, *Journal of Catalysis*, **2025**, 443 (2025) 115974.

154. Emine G. Acar, Begumhan K. Koç, Muhammad Israr, Emre Aslan, Orhan Altan, İmren H. Patır, **Önder Metin*,** Enhancement of photocatalytic activity of mesoporous graphitic carbon nitride/black phosphorus/tungsten disulfide (m-CN/BP/WS2) dual S-scheme heterojunctions via

nickel doping in the hydrogen evolution reaction, *Journal of Environmental Chemical Engineering*, **2025**, 13, 115343.

153. Asım Önal, Tarık Safa Kaya, **Önder Metin***, Sedat Nizamoglu, Emergence of Near-Infrared Photoluminescence via ZnS Shell Growth on the $AgBiS_2$ Nanocrystals, *Chemistry of Materials*, **2025**, 37, 255-265.

152. Yasin Bayir, Beyzagül Erkayman, Abdulmecit Albayrak, Saziye Sezin Palabiyik-Yücelik, Sümeyra Can, Hayrunisa Hanci, Fatih Tunç, Hamza Halici, Maide Sena Civelek, Melike Sevim, Emir Enis Yurdgülü, Onder Metin, Boric acid and zinc borate doped graphene hydrogels designed for burn treatment: In vitro viability-biocompatibility tests and microbiological analysis, Journal of Biomaterials Applications, *Journal of Biomaterials Applications*, **2025,** 39, 592-606.

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151. Juan Liu, Rihana Burciaga, Selene Tang, Shichao Ding, Hongshun Ran, Wen Zhao, Guangtao Wang, Zhengkai Zhuang, Liangyiqun Xie, Zhaoyuan Lyu, Yuehe Lin, Annie Du, Aihua Yuan, Jiaju Fu, Bing Song, Jiawei Zhu, Zhenyu Sun, Xin Jin, Zheng-Yang Huo, Bo Shen, Meikun Shen, Yue Cao, Yang Zhou, Yujing Jiang, Dongdong Zhu, Meng Sun, Xuanhao Wu, Chu Qin, Zhifeng Jiang, Onder Metin, Charitha J Thambiliyagodage, Jing-Jing Lv, Qing Li, Hao Wu, Zhiliang Wu, Jason Chun-Ho Lam, Guandao Gao, Chao Li, Mingchuan Luo, Yi Jiang, Xue Wang, Junrui Li, Min Liu, Richen Lin, Hongqiang Ren, Buxing Han, Yaxuan Jing, Wenlei Zhu, The Innovation Materials, **2024**, 2, 1-42.

150. Jadranka Milikić; Nemanja Gavrilov; Dalibor Stanković; Aleyna Basak; **Önder Metin**; Biljana Šljukić, Facile synthesis of Co/rGO, Au/rGO, and CoAu/rGO Nanocomposites for Precise Determination of Arsenic(III) in Water System, *Electrochimica Acta*, **2024**, 507, 145147.

149. Y. Ateş, Z. Eroğlu, Ö. Açişli, Ö. Metin, S. Karaca, Exploring the efficiency of nitrogenated carbon quantum dots/TiO_2 S-scheme heterojunction in photodegradation of ciprofloxacin in aqueous environments, *Turkish Journal of Chemistry*, 2024, *48 (4)*, 550-567.

148. Jian-Jun Long, Hao-Chong Wu, Yuan-Ting Liu, Yi-Yue Ding, Qi-Lu Yao, Onder Metin, Zhang-Hui Lu, Hydrogen Production from Chemical Hydrogen Storage Materials over Copper-Based Catalysts, *cMAT*, **2024**, 1, e10.

147. İlknur Aksoy Çekceoğlu, Zafer Eroglu, Eminegül Genc Acar, Hüseyin Mert Kaya, Emre Aslan, Önder Metin, Imren Hatay Patir, Superb Photo-Antibacterial/Antibiofilm Activities of BP/WS2 and BP/MoS_2 Nanocomposites under NIR Irradiation, *ACS Applied Nano Materials*, **2024**, 7, 15720–1573.

146. Zafer Eroglu, İlknur Aksoy Çekçekoğlu, Temirlan Kubanaliev, İmren Hatay Patır, **Önder Metin*,** Bismuthene Nanosheets as a Photodynamic and Photothermal Antibacterial Agent Under NIR Light Illumination, *Journal of Environmental Chemical Engineering*, **2024**, *12*, 113512.

145. Zafer Eroglu, Melek Sermin Ozer, **Önder Metin***, Are the Nitrogen-Based Imperfections in Graphitic Carbon Nitride Becoming a New Trend for Enhancing Photocatalytic Activity? *ChemCatChem*, **2024,** *16,* e202301560**.**

144. Turbedaroglu, Ozge; Kubanaliev, Temirlan; Alemdar, Sila; EROĞLU, Zafer; Kilic, Haydar; **Metin, Önder***, Reduced Graphene Oxide/Few-layer Phosphorene Binary Heterojunctions as Metal-Free Photocatalysts for the Sustainable Photoredox C-H Arylation Reactions, *ACS Sustainable Chemistry&Engineering*, **2024**, *12*, 3659–3670

143. Suleman Suleman, Yi Zhang, Jinwei Zhang, Zhongyuan Lin, Önder Metin, Zheng Meng, Hai-Long Jiang, Turning on Singlet Oxygen-Mediated Photo-Oxidation by Outer-Sphere Microenvironment Modulation in Porphyrinic Covalent Organic Frameworks, *Angewandte Chemie International Edition*, **2024**, 63, *e202314988*.

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142. Buse Sündü, Ayben Türkkan, Zafer EROĞLU, Onder Metin*, In situ Synthesis of 2D Bismuth/Graphitic Carbon Nitride Heterojunctions for the Visible Light-Driven Organic Dye Degradation, *Journal of NanoScience in Advanced Materials*, **2023,** 2, 36-44.

141. Palani Natarajan, Begümhan Karapınar Koç, **Önder Metin***, A facile tert-butyl nitrite-assisted preparation of deamino graphitic carbon nitride (DA-gCN) as a photocatalyst for the C-H arylation of heteroarenes using anilines as radical source, *Turkish Journal of Chemistry (Invited Paper for the 100th Anniversary of the Foundation of Türkiye Republic)*, **2023**, *47 (5), 1195-1208.*

140. Gizem Yanalak, Begümhan Karapınar Koç, Seda Yılmaz, Muhammad Israr, Mustafa Ersoz, **Onder Metin**, Imren Hatay Patir, The effect of Ni and Co co-catalysts on the Catalytic Activity of Mesoporous Graphitic Carbon Nitride/Black Phosphorus/Molybdenum disulfide Heterojunctions in Solar-driven Hydrogen Evolution, *Journal of Environmental Chemical Engineering*, **2023**, *11*, (5) 111084.

139. Sıla Alemdar, **Önder Metin***, Exploring the enhanced catalytic activity of Pt nanoparticles generated on the red phosphorus/graphitic carbon nitride binary heterojunctions in the photo-assisted hydrolysis of ammonia borane, *ACS Applied Materials&Interfaces*, **2023**, *15 (*41) 48096–48109.

138. Suleman Suleman, Xinyu Guan, Yi Zhang, Amir Waseem, **Önder Metin**, Zheng Meng, and Hai-Long Jiang, Regulating the Generation of Reactive Oxygen Species for Photocatalytic Oxidation by Metalloporphyrinic Covalent Organic Frameworks, *Chemical Engineering Journal*, **2023**, *476*, 146623

137. Açelya Yilmazer *, Cansu Gurcan, Zafer Eroglu, Arianna Gazzi, Okan Ekim, Buse Sundu, Ahmet Ceylan, Linda Giro, Mehmet Altay Unal, Fikret Arı, Ahmet Ekicibil, Ozge Ozgenç Çinar, Berfin Ilayda Ozturk, Cemile Gokce, Omur Besbinar, Mine Ensoy, Demet Cansaran-Duman, Lucia Gemma Delogu*, **Önder Metin***, Bismuthene for lung cancer combinatorial treatment in synergy with immunogenic cell death and ferroptosis, *Materials Today Bio*, **2023**, *23*, 100825.

136. Melike Karaca, Zafer Eroğlu, Özkan Açışlı, **Önder Metin**, Semra Karaca, Boosting Tetracycline Degradation with a S-scheme Heterojunction of N-Doped Carbon Quantum Dots Decorated TiO_2, *ACS Omega*, **2023**, 8, 29, 26597–26609.

135. Eminegül G. Acar, Seda Yılmaz , Zafer Eroğlu, İlknur A. Çekceoğlu, Emre Aslan, İmren H. Patır, **Önder Metin***, Black Phosphorus/WS2-TM (TM: Ni, Co) Heterojunctions for Photocatalytic Hydrogen Evolution under Visible Light Illumination, *Catalysts (invited)*, **2023**, 13 (6), 1006.

134. Zafer Eroğlu, **Önder Metin***, Engineering the Band Structure of Graphene Quantum Dots Decorated Graphitic Carbon Nitride/Black Phosphorus Hybrids (GQDs@CNBP) to Design Complex Type-II Heterojunctions with Superior Photocatalytic Activity, *Materials Today Sustainability*, **2023**, 23, 100418.

133. Guncem Ozgun Eren; Asim Onal; Onuralp Karatum; Hadi Jahangiri; Melek Ozer; Zafer Eroğlu; Buse Sundu; Lokman Kaya; Önder Metin; Alphan Sennaroglu; Sedat Nizamoglu, Ruthenium Doped InP/ZnS Quantum Dots and Their LED Application, *ACS Applied Nano Materials*, **2023**, 6, 12, 10044–10053.

132. Zafer Eroglu, Melek Sermin Ozer, **Onder Metin***, Black Phosphorus Quantum Dots/Carbon Nitride-Reduced Graphene Oxide Ternary Heterojunction as a Multifunctional Metal-Free Photocatalyst for Photooxidation Reactions, ACS Sustainable Chemistry&Engineering, **2023**, *11*, 7560–7572.

131. Palani Natarajan, Onder Metin, Facile preparation of N-tert-butyl amides under heat-, metal- and acid-free conditions by using tert-butyl nitrite (TBN) as a practical carbon source, *Chemical Communications (ChemComm)*, **2023**, **59**, 6548-6551.

130. Zafer Eroğlu, **Önder Metin*,** Internal Interactions within the Complex Type-II Heterojunction of a Graphitic Carbon Nitride/Black Phosphorus Hybrid Decorated with Graphene Quantum Dots: Implications for Photooxidation Performance, *ACS Applied Nano Materials*, **2023**, 6, 7960-7964.

129. Ibtihel Zaier, Zafer Eroglu, **Önder Metin***, A facile preparation of graphene hydrogel-supported RuM (M: Co, Ni, Cu) nanoparticles as catalysts in the hydrogen generation from ammonia borane, *Pure and Applied Chemistry* (Invited to the Prof. Mary L. Good Special Issue), **2023**, 95 (6), 655-669, doi: 10.1515/pac-2022-1204.

128. Natarajan Palani*, Aleyna Başak, **Önder Metin*,** Activation of DMSO(-d6) via heterogeneous photo-Fenton-like process with in-situ production of hydroxyl radicals for the C-H (trideutero)methylation of (iso)quinoliniums, *Green Chemistry*, **2023**, 25, 3187-3197.

127. Eminegül Genc Acar, Seda Yılmaz, Zafer Eroglu, Emre Aslan, **Önder Metin***, İmren Hatay Patır*, Solar-light-driven Photocatalytic Hydrogen Evolution Activity of gCN/WS2 Heterojunctions Incorporated with the First-row Transition Metals, *Journal of Alloys and Compounds*, **2023**, 950, 169753.

126. Temirlan Kubanaliev, Zafer Eroglu, Melek Sermin Ozer*, **Önder Metin***, The effect of N-vacancy on the photocatalytic activity of graphitic carbon nitride in the oxidative Mannich reaction, *Catalysis Science&Technology*, **2023,** *13*, 2317-2329.

125. Dilan Aksoy, Cüneyt Karakaya, Umut Savacı, Servet Turan, **Önder Metin***, Sarp Kaya, Controlling ORR Activities of Ag@Pt Core-shell Nanoparticles via Tuning of Ag in the Surface Layer, *Energy Technology*, **2023**, 11, 2201167. (Front Cover)

124. Hadi Jahangiri, Yagiz Morova, Armin Asghari Alamdari, Zafer Eroğlu, Alphan Sennaroglu, Sheng Guo, **Önder Metin*,** Amir Motallebzadeh, Femtosecond laser-mediated preparation of HfNbTaTiZr refractory high-entropy alloy nanoparticles in various liquid media, *Intermetallics*, **2023**, 156, 107834.

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122. Merve Aksoy**,** Sibel Eken Korkut, **Önder Metin*,** The Rational Design of gCN/a-WOx/Pt Heterostructured Nanophotocatalysts for Boosting the Hydrogen Generation from the Hydrolysis of Ammonia Borane under Visible Light, *International Journal of Hydrogen Energy*, **2023**, 22921-22933.

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121. Haluk Çağlar Kaymak*, Melike Sevim, **Önder Metin***, Graphene oxide as a new priming material for the germination of melon (Cucumis melo L.) seeds under the salinity stress, *Turkish Journal of Agriculture and Foresty*, **2022**, 46 (6), 863-874.

120. Sanaz Chamani, Ebrahim Sadeghi, Naeimeh Sadat Peighambardoust, Fatmanur Doganay, Gizem Yanalak, Zafer Eroglu, Emre Aslan, Elnaz Asgharif, **Onder Metin**, Imren Hatay Patir, Umut Aydemir, Maasoumeh Khatamiana, Photocatalytic Hydrogen Evolution Performance of Metal Ferrites / Polypyrrole Nanocomposites, *International Journal of Hydrogen Energy*, **2022**, *47*, 32940-32954.

119. Zi-Xuan Sun, Kang Sun, Ming-Liang Gao, **Önder Metin**, Hai-Long Jiang, Optimizing Pt Electronic States through Formation of Schottky Junction on Non-reducible Metal–Organic Frameworks for Enhanced Photocatalysis, *Angewandte Chemie International Edition*, **2022**, 61, *e202206108*.

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117. Zafer Eroğlu, Melek Sermin Özer, Temirlan Kubanaliev, Haydar Kilic, **Onder Metin***, Synergism Between Few-Layer Black Phosphorus and Graphitic Carbon Nitride Enhances the Photoredox C–H Arylation under Visible Light Irradiation, *Catalysis Science&Technology*, **2022**, *2022*, **12**, 5379-5389.

116. Merve Aksoy**,** Sibel Eken Korkut, **Önder Metin*,** AuPt Alloy Nanoparticles Supported on Graphitic Carbon Nitride: In situ Synthesis and a Superb Catalytic Performance in the Hydrolytic Dehydrogenation of Ammonia Borane, *Applied Surface Science*, **2022**, *602*, 154286.

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