

## Assoc. Prof. MÜRŞİDE HACIİSMAİLOĞLU

### Personal Information

Office Phone: [+90 224 294 1711](tel:+902242941711)

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

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

### International Researcher IDs

ScholarID: obAZ-XYAAAAJ

ORCID: 0000-0001-5648-3230

Publons / Web Of Science ResearcherID: AAH-9719-2021

ScopusID: 36482867500

Yoksis Researcher ID: 157809

### Education Information

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

Postgraduate, Bursa Uludağ University, FEN BİLİMLERİ ENSTİTÜSÜ, Fizik (YI) (Tezli), Turkey 2003 - 2005

Undergraduate, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, Fizik Bölümü, Turkey 1999 - 2003

### Dissertations

Doctorate, Co/Cu süperörgülerin elektrokimyasal olarak üretilmesi ve yapısal ve manyetik özelliklerinin incelenmesi, 2010

Postgraduate, Co-Cu alaşım filmlerinin elektrodepozisyonu ve özelliklerinin incelenmesi, 2005

### Research Areas

Natural Sciences

### Academic Titles / Tasks

Associate Professor, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2016 - Continues

Assistant Professor, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2012 - 2016

Research Assistant PhD, University of Bristol, 2012 - 2012

Research Assistant PhD, Bursa Uludağ University, FEN-EDEBİYAT FAKÜLTESİ, FİZİK, 2010 - 2012

Research Assistant, Bursa Uludağ University, FEN BİLİMLERİ ENSTİTÜSÜ, FEN BİLİMLERİ ENSTİTÜSÜ, 2005 - 2010

Research Assistant, Bursa Uludağ University, FEN BİLİMLERİ ENSTİTÜSÜ, FEN BİLİMLERİ ENSTİTÜSÜ, 2005 - 2005

### Courses

Kuantum Fiziği, Undergraduate, 2013 - 2014

Kathal Fiziğine Giriş, Undergraduate, 2013 - 2014

Temel Fizik II, Undergraduate, 2012 - 2013

Temel Fizik I, Undergraduate, 2012 - 2013

Elektrokimyasal Metotlar ve Kriminalistik Uygulamaları, Postgraduate, 2012 - 2013

### Advising Theses

Şafak Hacismailoğlu M., Süperkapasitör uygulamaları için Mn-oksit filmlerin üretilmesi, Postgraduate, İ.ORHAN(Student), 2023

Şafak Hacısmailoğlu M., Elektrokimyasal depozisyon yöntemi ile üretilen polipirol ve polipirol-mangan oksit filmlerin kapasitif davranışlarının araştırılması, Doctorate, D.VATANSEVER(Student), 2023  
Şafak Hacısmailoğlu M., İletken polimer ve metal parçacık içeren kompozit filmler, Postgraduate, A.SAÇIK(Student), 2021  
Şafak Hacısmailoğlu M., Hacısmailoğlu M., Production of Cu<sub>2</sub>O (Copper (I) Oxide) thin films by electorchemical technique and investigation of properties, Postgraduate, E.Subaşı(Student), 2020

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

- I. **Polypyrrole-oxalate and polypyrrole-sulfate electrodes for supercapacitor applications**  
Hacısmailoglu M., Vatansever D., Alper M.  
CHEMICAL PAPERS, vol.78, pp.3315-3329, 2024 (SCI-Expanded)
- II. **Binary potential loop electrodeposition and corrosion resistance of Cr coatings**  
Kus E., ŞAFAK HACİİSMAİLOĞLU M., ALPER M.  
Journal of Applied Electrochemistry, 2024 (SCI-Expanded)
- III. **Pencil graphite/polypyrrole supercapacitors: The structural and chemical changes of the electrodes after capacitive measurements**  
Vatansever D., Şafak Hacısmailoğlu M.  
MATERIALS CHEMISTRY AND PHYSICS, vol.295, 2023 (SCI-Expanded)
- IV. **Electrical and optical properties of Schottky diodes fabricated by electrodeposition of Ni films on n-GaAs**  
HACİİSMAİLOĞLU M. C., AHMETOĞLU M., ŞAFAK HACİİSMAİLOĞLU M., ALPER M., Batmaz T.  
Sensors and Actuators A: Physical, vol.347, 2022 (SCI-Expanded)
- V. **Optical design of light guide prisms with surface roughness for automotive tail lights**  
Guney E., ALPER M., Hacısmailoglu M.  
PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D-JOURNAL OF AUTOMOBILE ENGINEERING, no.9, pp.2393-2401, 2020 (SCI-Expanded)
- VI. **Effect of NiFe layer thickness on properties of NiFe/Cu superlattices electrodeposited on titanium substrate**  
KURU H., Aytekin N. C., KÖÇKAR H., Hacısmailoglu M., ALPER M.  
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, no.19, pp.17879-17889, 2019 (SCI-Expanded)
- VII. **Electrodeposition and Characterization of Co/Cu Multilayers**  
Hacısmailoglu M., Alper M., Kockar H., Karaagac O.  
ACTA PHYSICA POLONICA A, no.4, pp.773-775, 2016 (SCI-Expanded)
- VIII. **Effects of the PPy layer thickness on Co-PPy composite films**  
Hacısmailoglu M.  
APPLIED SURFACE SCIENCE, pp.817-826, 2015 (SCI-Expanded)
- IX. **Relation between ferromagnetic layer thickness (NiCu) and properties of NiCu/Cu multilayers**  
KURU H., KÖÇKAR H., ALPER M., Hacısmailoglu M.  
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, no.7, pp.5014-5021, 2015 (SCI-Expanded)
- X. **The effect of ferromagnetic and non-ferromagnetic layer thicknesses on the electrodeposited CoFe/Cu multilayers**  
Tekgul A., ALPER M., KÖÇKAR H., Hacısmailoglu M.  
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, no.4, pp.2411-2417, 2015 (SCI-Expanded)
- XI. **Electrodeposited CoFeCu films at high and low pH levels: structural and magnetic properties**  
KÖÇKAR H., Ozergin E., KARAAĞAÇ Ö., ALPER M., KURU H., Hacısmailoglu M.  
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, no.4, pp.2090-2094, 2015 (SCI-Expanded)
- XII. **Electrodeposition and Characterization of Co Particles on Ultrathin Polypyrrole Films**  
Hacısmailoglu M., Hacısmailoglu M. C., ALPER M., Schwarzacher W.  
JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM, no.11, pp.2599-2606, 2014 (SCI-Expanded)
- XIII. **Electrodeposited NiCoFe films from electrolytes with different Fe ion concentrations**  
KÖÇKAR H., Demirbas O., KURU H., ALPER M., KARAAĞAÇ Ö., Hacısmailoglu M., Ozergin E.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, pp.148-151, 2014 (SCI-Expanded)
- XIV. **Substrate type and their rotation speed controlled magnetic anisotropy of iron films evaporated by a newly designed vacuum coating system**  
Kockar H., Karaagac O., Kuru H., Karpuz A., Hacısmailoglu M., Alper M.  
OPTOELECTRONICS AND ADVANCED MATERIALS-RAPID COMMUNICATIONS, no.3-4, pp.270-273, 2014 (SCI-Expanded)
- XV. **Coating Effect on Magnetic Properties of**

**Fe<sub>36</sub>Co<sub>36</sub>B<sub>19.2</sub>Si<sub>4.8</sub>Mo<sub>3</sub>W<sub>1</sub>**  
**Amorphous Ribbons**

Perincek F., Hacıismailoglu M., Sarlar K., Hacıismailoglu M. C., Alper M., Kucuk I.  
ACTA PHYSICA POLONICA A, no.2, pp.408-410, 2014 (SCI-Expanded)

- XVI. **Properties of Electrodeposited CoFeNi/Cu Superlattices: The Effect of CoFeNi and Cu Layers Thicknesses**  
Kalsen S, ALPER M., KÖÇKAR H., Hacıismailoglu M., KARAAĞAÇ Ö., KURU H.  
JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM, no.4, pp.813-817, 2013 (SCI-Expanded)
- XVII. **Effect of Co and Cu Layer Thicknesses on Characterization of Electrodeposited Co/Cu Multilayers**  
Hacıismailoglu M., ALPER M., KÖÇKAR H.  
SENSOR LETTERS, no.1, pp.106-109, 2013 (SCI-Expanded)
- XVIII. **Influence of Co:Cu ratio on properties of Co-Cu films deposited at different conditions**  
KARAAĞAÇ Ö., KÖÇKAR H., ALPER M., Hacıismailoglu M.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, no.22, pp.3834-3838, 2012 (SCI-Expanded)
- XIX. **Electrodeposited Ni-Co films from electrolytes with different Co contents**  
Karpuz A, KÖÇKAR H., ALPER M., KARAAĞAÇ Ö., Hacıismailoglu M.  
APPLIED SURFACE SCIENCE, no.8, pp.4005-4010, 2012 (SCI-Expanded)
- XX. **Effect of electrolyte pH and Cu concentration on microstructure of electrodeposited Ni-Cu alloy films**  
Hacıismailoglu M., ALPER M.  
SURFACE & COATINGS TECHNOLOGY, no.6, pp.1430-1438, 2011 (SCI-Expanded)
- XXI. **Co-Fe Films: Effect of Fe Content on Their Properties**  
KÖÇKAR H., ALPER M., Sahin T., Hacıismailoglu M.  
JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, no.11, pp.7639-7642, 2010 (SCI-Expanded)
- XXII. **Magneto-resistance of CoNiCu/Cu Multilayers Electrodeposited from Electrolytes with Different Ni Ion Concentrations**  
Hacıismailoglu M., Alper M., Kockar H.  
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, no.10, 2010 (SCI-Expanded)
- XXIII. **Comparison of Ni-Cu alloy films electrodeposited at low and high pH levels**  
Alper M., KÖÇKAR H., Safak M., BAYKUL M. C.  
JOURNAL OF ALLOYS AND COMPOUNDS, no.1-2, pp.15-19, 2008 (SCI-Expanded)
- XXIV. **Growth and characterisation of electrodeposited Co/Cu superlattices**  
Safak M., Alper M., KÖÇKAR H.  
JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, no.2, pp.854-860, 2008 (SCI-Expanded)
- XXV. **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)
- XXVI. **Parameters affecting microstructure and magneto-resistance of electrodeposited Co-Cu alloy films**  
Safak M., Alper M., KÖÇKAR H.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, no.2, 2006 (SCI-Expanded)

## Articles Published in Other Journals

- I. **PROJECTION OF SCIENCES ONTO TEXTILE AND FASHION:NANO-TECHNOLOGY AND CHARGEABLE FABRIC EXAMPLE - PART II**  
iyidoğan d., akdemir ö., jıtka e., kaplan g., çavuş m. b., ŞAFAK HACİİSMAİLOĞLU M., ALPER M., çobanoğlu ö.  
Tekstil ve Mühendis, vol.26, no.113, pp.71-80, 2019 (Scopus)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Electrodeposition of p-type Copper-oxide films from an alkaline solution**  
SUBAŞI E., HACİİSMAİLOĞLU M. C., ŞAFAK HACİİSMAİLOĞLU M., ALPER M.  
8th International conference on materials science and nanotechnology for next generation (MSNG2021), Elazığ, Turkey, 14 July 2021
- II. **Structural properties of silicon nanowires produced by metal-assisted chemical etching method**  
Bozdoğan E., HACİİSMAİLOĞLU M. C., ŞAFAK HACİİSMAİLOĞLU M., ALPER M., Erdoğan N.

8th International conference on materials science and nanotechnology for next generation (MSNG2021), Elazığ, Turkey, 14 July 2021, pp.57

III. **Polypyrrole thin films for supercapacitor applications**

VATANSEVER D., ŞAFAK HACİSMAİLOĞLU M., ALPER M.

8th International conference on materials science and nanotechnology for next generation (MSNG2021), Nevşehir, Turkey, 14 July 2021

IV. **THE ELECTRICAL AND OPTICAL CHARACTERIZATION OF ELECTRODEPOSITED Ni /n-GaAs SCHOTTKY BARRIER DIODES**

Batmaz T., Kirezli B., Şafak Hacısmailoğlu M., Alper M., Ahmetoğlu M.

rd International Conference on Organic Electronic Material Technologies (OEMT2018), Kırklareli, Turkey, 20 - 22 September 2018

V. **The role of polypyrrole layer on titanium substrate for electrodeposition of cobalt**

VATANSEVER D., ŞAFAK HACİSMAİLOĞLU M., ALPER M., KURU H., KÖÇKAR H.

5th International conference on materials science and nanotechnology for next generation (MSNG2018, 4 - 06 October 2018

VI. **Electrodeposition of CoNi-polypyrrole composite films and their magnetic properties**

VATANSEVER D., ŞAFAK HACİSMAİLOĞLU M., ALPER M., ŞARLAR K., KÜÇÜK İ.

5th International conference on materials science and nanotechnology for next generation (MSNG2018, 4 - 06 October 2018

VII. **Electrochemical deposition of Cobalt-Polypyrrole composite films by changing Cobalt deposition potential**

Vatansever D., ŞAFAK HACİSMAİLOĞLU M., ALPER M., KÖÇKAR H.

Turkish Physical Society 34th International Physics Congress, Bodrum, Turkey, 5 - 09 September 2018

VIII. **Structural, Magnetic and Magnetoresistance Properties of NiFe/Cu Superlattices Electrodeposited on Titanium Substrate Depending on Ni Fe Layer Thickness**

KURU H., AYTEKİN N., ŞAFAK HACİSMAİLOĞLU M., ALPER M., KÖÇKAR H.

Joint European Magnetic Symposia, JEMS'09, 3 - 07 September 2018

IX. **Structural and optical properties of electrodeposited NiO thin films**

Epiri Ç., ŞAFAK HACİSMAİLOĞLU M., ALPER M., HACİSMAİLOĞLU M. C.

12th INTERNATIONAL WORKSHOP ON ELECTRODEPOSITED NANOSTRUCTURES, Sofija, Bulgaria, 16 - 18 March 2017

X. **Otomotiv Dış Aydınlatma Sistemleri İçin Işık Tüplerinin Optik Tasarımı ve Prototip İmalatı**

ŞENTÜRK GÜNEY E., ALPER M., ŞAFAK HACİSMAİLOĞLU M., IŞIK M., TURŞUCULAR E.

10.ULUSALAYDINLATMAKONGRESİ, Turkey, 16 - 18 April 2015

XI. **Elektrodepozisyon İle Üretilen NiO İnce Filmlerin Yapısal ve Optik Karakterizasyonu Otomotiv Dış Aydınlatmada İnce Film Uygulaması**

TÜRE Ç., ŞAFAK HACİSMAİLOĞLU M., ALPER M.

10.ULUSALAYDINLATMAKONGRESİ, Turkey, 16 - 18 April 2015

XII. **Electrodeposition And Characterization Of Cocu cu Multilayers**

ŞAFAK HACİSMAİLOĞLU M., ALPER M., KÖÇKAR H.

5th International Advances in Applied Physics and Materials Science Congress & Exhibition (APMAS2015), 16 - 19 April 2015

XIII. **Deposition parameters dependence of properties of Co Mn electrodeposition films**

KARPUZ A., KÖÇKAR H., ALPER M., KARAAĞAÇ Ö., ŞAFAK HACİSMAİLOĞLU M.

9th international conferences on material science and engineering, 5 - 07 March 2015

XIV. **Dependence of Magnetoresistance in Electrodeposited CoNiCu/Cu Multilayers on Ni Composition**

Hacısmailoğlu M., Alper M., Kockar H.

Symposium on Electrodeposition of Nanoengineered Materials and Devices 3 held during the 216th Meeting of the Electrochemical-Society (ECS), Vienna, Austria, 4 - 09 October 2009, pp.87-95

XV. **Electrodeposited NiCo/Cu superlattices**

Safak M., Alper M.

6th International Conference of the Balkan-Physical-Union, İstanbul, Turkey, 22 - 26 August 2006, pp.644

## Supported Projects

AYDEMİR U., PEKSÖZ A., AKYILDIZ H. İ., TEMEL Ş. G., AKAY S. K., KARABÖRKLÜ Ö., DEMİRTAŞ M., KAPLAN H. K., ŞAFAK HACİSMAİLOĞLU M., HAYBER Ş. E., et al., Project Supported by Higher Education Institutions, İki Boyutlu Grafen ve Metal Kalkojen Tabanlı Mikro-Nano Sistemlerin Geliştirilmesi ve Uygulamaları, 2024 - Continues  
HACİSMAİLOĞLU M., HACİSMAİLOĞLU M. C., VATANSEVER D., KUŞ E., ALPER M., Project Supported by Higher Education Institutions, Bitkisel ve Hayvansal Biyopolimerlerden Jel Elektrolit Yapımı ve Enerji Depolama Cihazlarında Kullanılması, 2023 - Continues

ALPER M., VATANSEVER D., KUŞ E., BOZDOĞAN E., ORHAN İ., ŞAFAK HACİSMAİLOĞLU M., HACİSMAİLOĞLU M. C., GÜLTEKİN Z., SUBAŞI E., Project Supported by Higher Education Institutions, Süperkapasitör ve spinOLEDlerde kullanılan malzemelerin yapısal özelliklerinin incelenmesi ve diğer özellikler ile karşılaştırılması, 2022 - Continues

Şafak Hacismailoğlu M., TÜBİTAK International Bilateral Joint Cooperation Program Project, Electrodeposition of Nanostructured Materials and Their Magnetic and Magnetotransport Characterisation, 2004 - 2025

HACİSMAİLOĞLU M., KUŞ E., Project Supported by Higher Education Institutions, NiCr Tabanlı Alaşımların Elektrodepozisyon Yöntemiyle Üretilmesi ve Karakterizasyonu, 2022 - 2024

HACİSMAİLOĞLU M., ORHAN İ., Project Supported by Higher Education Institutions, Süperkapasitör Uygulamaları İçin MnOksit Filmlerin Üretilmesi, 2022 - 2023

Şafak Hacismailoğlu M., Kuş E., Project Supported by Other Private Institutions, Mikrodalga Frekans Aralığındaki Elektromanyetik Dalgalarla Etkileşimi Artırılmış, Korozif Ortamlara Dayanıklı Ni-Cr Tabanlı Metalik Alaşımların Elektrodepozisyon Yöntemi İle Üretilmesi ve Karakterizasyonu, 2021 - 2023

Şafak Hacismailoğlu M., Vatansver D., Project Supported by Higher Education Institutions, Elektrokimyasal Depozisyon Yöntemi ile Üretilen Polipirol ve Polipirol-Mangan Filmlerin Kapasitif Davranışlarının Araştırılması, 2021 - 2023

Hacismailoğlu M., Project Supported by Other Official Institutions, CoPd İnce Filmlerin Üretilmesi, Yapısal ve Manyetorezistans Özelliklerinin İncelenmesi , 2015 - 2017

Şafak Hacismailoğlu M., Project Supported by Other Official Institutions, Organik Elektronik Cihazların Üretilmesi ve Karakterizasyonu, 2015 - 2017

Şafak Hacismailoğlu M., İzgi B., Project Supported by Higher Education Institutions, Polipirol ve Co İçeren Kompozit Filmlerin Elektrokimyasal Yöntemle Sentezlenmesi ve Özelliklerinin Araştırılması, 2015 - 2016

Şafak Hacismailoğlu M., Alper M., Industrial Thesis Project, Otomotiv Dış Aydınlatma Sistemleri İçin Farklı Geometrilere ve Homojen Işık Dağılımına Sahip Işık Tüpünün Optik Tasarımı ve Prototip İmalatı, 2013 - 2016

ŞAFAK HACİSMAİLOĞLU M., Project Supported by Other Private Institutions, Redox Fabrics, 2014 - 2015

ŞAFAK HACİSMAİLOĞLU M., ALPER M., Project Supported by Higher Education Institutions, Şekil Hafızalı Alaşımların Üretimi ve Özelliklerinin İncelenmesi, 2014 - 2015

Küçük N., Küçük İ., Alper M., Şafak Hacismailoğlu M., Project Supported by Higher Education Institutions, Elektro Depozisyon ve Dönel Kaplama Yöntemleri ile Büyütülmüş Katkılı ve Katkısız ZnO İnce Filmlerin Termoluminesans ve Dozimetrik Özelliklerinin İncelenmesi, 2011 - 2013

Şafak Hacismailoğlu M., Project Supported by Other Official Institutions, Nanoteknolojik Ferromanyetik Malzemelerin Elektrokimyasal Olarak Sentezlenmesi ve Karakterizasyonu, 2010 - 2013

Şafak Hacismailoğlu M., Project Supported by Other Official Institutions, Manyetik Tek Tabaka Alaşım ve Süperörgülerde Manyetik ve Yapısal Özelliklerin İncelenmesi, 2007 - 2008

Şafak Hacismailoğlu M., Project Supported by Other Official Institutions, Ferromanyetik Nanoteknolojik Malzemelerin Üretimi ve Karakterizasyonu, 2005 - 2007

## Patent

Şafak Hacismailoğlu M., Vatansver D., Alper M., AYVA ÇEKİRDEĞİNDEN JEL ELEKTROLİT VE ÜRETİM YÖNTEMİ, Patent, CHAPTER G Physics, The Invention Recourse Number: 2023/010451 , Standard Registration, 2023

Şafak Hacismailoğlu M., Vatansver D., Alper M., ALOE VERADAN ELDE EDİLEN BİR JEL ELEKTROLİT, Patent, CHAPTER G Physics, The Invention Recourse Number: 2023/016183 , Standard Registration, 2023

Şafak Hacismailoğlu M., Alper M., Kuş E., BİR KAPLAMA YÖNTEMİ, Patent, CHAPTER G Physics, The Invention Recourse Number: 2023/005578 , Standard Registration, 2023

Şafak Hacismailoğlu M., Alper M., Vatansver D., GEL ELECTROLYTE FROM QUINCE SEED AND PRODUCTION METHOD, Patent, CHAPTER G Physics, The Invention Recourse Number: PCT/TR2023/051540 , Standard Registration, 2023

Şafak Hacismailoğlu M., Alper M., Kuş E., A PLATING METHOD, Patent, CHAPTER G Physics, The Invention Recourse Number: PCT/TR2023/050524 , Standard Registration, 2023

Şafak Hacismailoğlu M., Vatansver D., Alper M., PGE/PPy-Mn OKSİT ELEKTROT VE BU ELEKTRODU İÇEREN SÜPERKAPASİTÖR, Patent, CHAPTER G Physics, The Invention Recourse Number: 2022/018543 , Standard Registration, 2022

Şafak Hacismailoğlu M., Vatansver D., Alper M., PGE/PPy-Mn OXIDE ELECTRODE AND SUPERCAPACITOR CONTAINING THIS ELECTRODE, Patent, CHAPTER G Physics, The Invention Recourse Number: PCT/TR2022/051507 , Standard Registration, 2022

## Metrics

Publication: 45

Citation (WoS): 392

Citation (Scopus): 409

H-Index (WoS): 11

H-Index (Scopus): 11