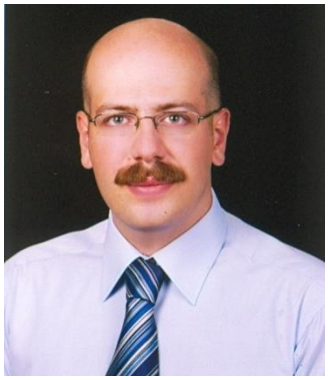

Prof. Dogan Erbahar

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RESEARCH GROUP WEBSITE:

https://erbaharlab.com

PERSONAL:

Nationality: Republic of Turkey
Birth Place: Istanbul - Turkey
Birth Date: 05. 12. 1979
Military Service: Completed
Asc. Prof. (Docent) Title: 24.11.2017 (via UAK oral exam)

LANGUAGES SPOKEN:

- Turkish (Native)
- English (Fluent, KPDS: 95, ÜDS: 87.5)
- French (Intermediate, A2-B1)

EDUCATION:

2006 – 2012: PhD. - Gebze Institute of Technology, Physics Department
Thesis Title: Investigation of impurities and defects in nanostructures by computational methods

2003 – **2006: MSc. -** Gebze Institute of Technology, Physics Department
Thesis Title: An interferometric method for measuring the thermal expansion of solids

1998 – 2003: BSc. - Bogazici University, Physics Department

1994 – 1997: High School - Uskudar Private Science Lycee

SPECIALITY:

Physics of nano-materials and nano-structures. Investigation of electronic, structural and mechanical properties of nanostructures. Catalytical properties and defects of nano-materials. Characterization, modelling, design and simulation of nano-materials. Molecular dynamics and first principle (*ab initio*) methods. Machine learning applications in condensed matter physics. LAMMPS and GULP codes in molecular dynamics SIESTA and AIMPRO codes in DFT. Advanced level scripting in Python programming language.

PROFESSIONAL EXPERIENCE:

23.01.2023 – Present: Proffessor Dogus University, Faculty of Engineering, Dept. of Mechanical Engineering

14.11.2018 – 23.01.2023: Associated Proffessor (Docent). Dogus University, Faculty of Engineering, Dept. of Mechanical Engineering

13.05.2004 – 14.11.2018: Research assistant. Gebze Technical University, Physics Department, Cayırova, Gebze / Kocaeli-TURKEY

03.03.2014 – 03.03.2015: Post - Doctoral Researcher, Institut des Materiaux Jean Rouxel – CNRS, Nantes, FRANCE (Director: Dr. Chris Ewels)

17.07.2011 – 04.09.2011: Invited Researcher, Physics and Astronomy Department, Michigan State University , East Lansing, MI, USA (Host: Prof. David Tomanek)

ADMINISTRATIVE DUTIES:

12.07.2021 – 21.03.2022 : Head of Department - Dogus Univesity Mechanical Engineering

14.09.2020 – Present: Executive Member - Dogus University Engineering Faculty

31.05.2021 – Present: Dogus University Research and Developement Commision

15.10.2019 – 25.03.2021: Deputy Head - Dogus University Research, Innovation and High Technology Center

12.07.2019 – 03.03.2020: Executive Member - Dogus University Faculty of Arts and Design

11.06.2019 – 24.09.2019: Executive Member - Dogus University Faculty of Economic and Administrative Sciences

BOOKS AND BOOK CHAPTERS:

- NanoSpace 2nd Joint Scientific Meeting & MC Meeting: Book of Abstracts. E. Gezer, D. Erbahar, D. A. García Hernández (eds.). Erbahar Research Lab, Istanbul, 2024. (Editorship)

- *Nanoscale materials for warfare agent detection: Nanoscience for security*, Springer, 2019, *Chapter 3: Sensing volatile organic compounds by phthalocyanines with metal centers Exploring the mechanism with measurements and modelling*, Dogan Erbahar, Savas Berber, Dilek D. Erbahar

INVITED TALKS:

- HeteroNanoCarbon 2025 Conference: 13-17 January 2025
- 33. Turkish Physical Society Conference: 6-10 September 2017
- Bilkent University UNAM Colloquium: 6 April 2017
- TUBITAK-MAM Materials Institute Seminar: 8 February 2017
- Pendik İTO Şehit Ahmet Aslanhan A.L Science Days: 30 October 2017

PUBLICATIONS:

- **Roadmap on carbon molecular nanostructures in space.** K. Hansen, D. A. Garcia Hernandez, E. E. B. Campbell, D. Erbahar, et.al. The European Physical Journal D, accepted.

- **Emergent Atomic Environments in Twisted Bilayer Graphene and Their Use in the Prediction of the Vibrational Properties**, Ickecan D., Bleda E.A., Okyaylı Y.E, Erbahar D., Computational Materials Science 250 (2025) 113669

- **Comparing the Shielding Features of Graphene and Impregnated Activated Carbon with Selected Traditional Shielding Materials for Gamma-Rays**, Sakarya Üniversitesi Fen Bilimleri Enstitüsü Dergisi Ickecan, D., Türkan, M.N., Erbahar, D., Gülbicim, H., Sakarya University Journal of Science, 27(3), 614-620, DOI: 10.16984/saufenbilder.1152986

- **Pyrene Substituted Phthalonitrile Derivative As a Fluorescent Sensor For Detection of Fe^{3+} Ions in Solutions** Alraqa, S.Y., Kaya, E.N., Taşci, N., Erbahar, D., Durmuş, M., Journal of Fluorescence, 2022, 32(5), pp. 1801–1813

- **Prismatic edge dislocations in graphite**; JG McHugh, P Mouratidis, A Impellizzeri, K Jolley, D Erbahar, CP Ewels; Carbon (2022) 188, 401-419

- **The role of charge distribution on the friction coefficients of epitaxial graphene grown on the Si-terminated and C-terminated faces of SiC**; Y Keskin, Ö Ünverdi, D Erbahar, İİ Kaya, C Çelebi; Carbon (2021) 178, 125-132

- **A novel selective fluorescent chemosensor for Fe3+ ions based on phthalonitrile dimer: synthesis, analysis, and theoretical studies;** S. Al-Raqa, İ. Omeroglu, D. Erbahar, M. Durmus; Turk J Chem (2020) 44:1254-1264

- **DFT and semi-empirical analyses of Cr3+ and Fe3+ impurity centers in Cs2NaYF6: Microscopic insight into structural properties;** D. Erbahar, Y. Emul, M. Acikgoz; Polyhedron 173 (2019) 114114

- **Microscopic insight into electronic and structural properties of Cr^{3+} and Fe^{3+} impurities in Cs_2NaAlF_6 via DFT and SPM analyses;** D. Erbahar, Y. Emul, M. Acikgoz; Journal of Fluorine Chemistry 226 (2019) 109350

- **Correction: A cobalt arylphosphonate MOF - superior stability, sorption and magnetism;** Y. Zorlu, D. Erbahar, A. Cetinkaya, A. Bulut, T. S. Erkal, A. O. Yazaydin, J. Beckmann, G. Yucesan; Chem. Commun., 2019,**55**, 3168-3168

- **A cobalt arylphosphonate MOF - superior stability, sorption and magnetism;** Y. Zorlu, D. Erbahar, A. Cetinkaya, A. Bulut, T. S. Erkal, A. O. Yazaydin, J. Beckmann, G. Yucesan; Chem. Commun., 2019, 55, 3053

- **Towards room-temperature superconductivity in low-dimensional C60 nanoarrays: An ab initio study;** Dogan Erbahar, Dan Liu, Savas Berber, David Tomanek, Physical Review B. 97, 140505(R)

- **Analysis of paramagnetic 3d ions (Cr3+ and Fe3+) centers in fluoroelpasolite Cs2NaGaF6 crystal by both DFT and SPM calculations**; D. Erbahar, Y. Emul, M. Acikgoz; Chemical Physics, 501 (2018) 93-100

- **Interlayer vacancy defects in AA-stacked bilayer graphene: Density Functional Theory predictions;** A. Vuong, T. Trevethan, C. D. Latham, C. P. Ewels, D. Erbahar, P.R. Briddon, M. J. Rayson, M. I. Heggie J. Phys.: Condens. Matter 29 (2017) 155304 (9pp)

- **Cyclotetrahalo-p-phenylenes: Simulations of Halogen substituted Cycloparaphenylenes and their interaction with C60;** J. Rio, D. Erbahar, M. Rayson , P. Briddon, C. P. Ewels Phys. Chem. Chem. Phys., 2016,18, 23257-23263

- **Effect of functionalization and charging on resonance energy and radial breathing modes of metallic carbon nanotubes** S. Öberg, J. –J. Adjizian, D. Erbahar, J. Rio, B. Humbert, M. Dossot, A. Soldatov, S. Lefrant, J. –Y. Mevellec, P. Briddon, M. Rayson, C. P. Ewels. Phys. Rev. B 93, 045408

- **Spectromicroscopy of C_{60} and azafullerene $C_{59}N$: Identifying surface absorbed water**, Dogan Erbahar, Toma Susi, Xavier Rocquefelte, Carla Bittencourt, Mattia Scardamaglia, Peter Guttmann, Georgios Rotas, Nikos Tagmatarchis, Xiaohui Zhu, Adam P. Hitchcock, and Chris P. Ewels, Scientific Reports Scientific Reports 6, 35605 (2016) DOI: 10.1038/srep35605

- **Investigation of the Fe^{3+} centers in perovskite $KMgF_3$ through a combination of ab initio (DFT) and semi-empirical (SPM) calculations**, Yakup Emül, Dogan Erbahar, Muhammed Açıkgöz, J. Appl. Phys. 118, 063903 (2015)

- **Fiziksel Teorilere Aksiyomatik Yaklaşım (Axiomatic approach to Physical Theories)**, Doğan Erbahar, Fizik Eğitimi ve Felsefesi /Education and Philosophy of Physics 1(1),18-27, (2016).

- **Selective Decoration of Isolated Carbon Nanotubes by Potassium Evaporation: Scanning Photoemission Microscopy and Density Functional Theory**, Claudia Struzzi, Dogan Erbahar, Mattia Scardamaglia, Matteo Amati, Luca Gregoratti, Maureen J. Lagos, Gustaaf Van Tendeloo, Rony Snyders, Chris Ewels and Carla Bittencourt; J. Mater. Chem. C (2015), 3, 2518-2527.

- **Analysis of the local structrure around Cr3+ centers in perovskite KMgF3 using both ab initio (DFT) and semi-empirical (SPM) calculations**, Yakup Emul, Dogan Erbahar, Muhammed Acikgoz; Chemical Physics, 444 (2014) 52-60.

- **FD: 173 Nitrogen Segregation in Nanocarbons**, Chris Ewels, Dogan Erbahar, Philipp Wagner, Xavier Rocquefelte, Raul Arenal, Pascal Pochet, Mark Rayson, Mattia Scardamaglia, Carla Bittencourt, Patrick R. Briddon; Faraday Discuss. (2014) 173, 215-232.

- **Chlorination of Carbon Nanotubes**, Dogan Erbahar, Savas Berber, Phys. Rev. B. 85, 085426 (2012)

- **Electret States and Current Oscillations in the Ferroelectric Semiconductor $TlGaSe_2$** MirHasan Yu. Seyidov, , Y. Sahin, D. Erbahar, R. A. Suleymanov Physica Status Sollidi (a) 203, No. 15 (2006). 3781–3787.

PRESENTATIONS:

- **Testing nanotribology theories on heterogeneous carbon interfaces,** Dogan Erbahar, Cem Celebi, Ozhan Unverdi, Mete Oztay, Tuana Karakoyun, Eftal Gezer, Dilara Ickecan, Semran Ipek, Cicek Kaplan, HeteroNanoCarbon 2025, 13-17 January 2025, Benasque (Aragon), Spain **(INVITED TALK)**

- **Emergent Atomic Environments in Twisted Bilayer Graphene and Their Use in the Prediction of the Vibrational Properties**, Erbahar D., Ickecan D., Okyayli Y.E. Bleda E.A., Carbon Nanoscience and NanoTechnology (NanoteC24), 27-30 Aug. 2024, Nantes, France

- **Cosmic nanocarbon inventory database proposal: A sustainable, open-access and open-source Science 4.0 platform.** E. Gezer, D. Erbahar. Oral talk at: NanoSpace 2nd Joint Scientific Meeting, Istanbul, 2024.

- **Fullerenes as versatile catalysts in prebiotic reactions,** E. Gezer, D. Erbahar. Oral talk at: NanoSpace 2nd Joint Scientific Meeting, Istanbul, 2024.

- **Emergent Atomic Environments in Twisted Bilayer Graphene and Their Use in the Prediction of the Vibrational Properties**, Ickecan D., Bleda E.A.,

Okyayli Y.E, Erbahar D., NanoSpace 2nd JSM, 16-18 April 2024, Istanbul, Turkey

- **Effect of Local Environment on the Vibrational Properties of Twisted Bilayer Graphene: A Machine Learning Approach**, Ickecan D., Bleda E.A., Okyayli Y.E, Erbahar D., APS March Meeting 2024, 3-8 March 2024.

- **Investigation of Vibrational Properties of Twisted Bilayer Graphene**, Ickecan D., Okyayli Y.E, Bleda E.A., Erbahar D., 17th Nanoscience & Nanotechnology Conference (NanoTR-17), 27-29 August 2023, Izmir, Turkey.

- **Phonon Spectra of Twisted 2D Structures- A Case Study with Molecular Dynamics and Machine Learning**, Ickecan D., Okyayli Y.E, Bleda E.A., Erbahar D. , Singapore-Turkey workshop on Materials Science & Engineering, 12-13 July 2023, Istanbul, Turkey.

- **Probing the Phonon Spectra of Twisted Bilayer Graphene with Machine Learning Methods**, Ickecan D., Bleda E.A., Erbahar D., APS March Meeting 2023, 20-22 March 2023.

- **Investigation of Vibrational Properties of Twisted Bilayer Graphene**, Ickecan D., Bleda E.A., Erbahar D., 16th Nanoscience & Nanotechnology Conference (NanoTR-16), 3-2 Sep. 2022, METU, Turkey.

- **Döndürülmüş Çift Katmanlı Grafen – Spektroskopiden Tribolojiye Teorik Kestirimler,** Doğan Erbahar, Yoğun Madde Fiziği İzmir Toplantısı, 28 Nisan 2023, İYTE – İzmir (Oral Presentation)

- **Testing the Nanotribology Theories on Twisted Bilayer Graphene,** Erbahar, D., Celebi, C., Unverdi, O., Ipek, S., Ickecan, D., Gezer E., Karakoyun, V., Sirin, T., Gözek, M., APS March Meeting 2023, 5-10 Mart 2023, Las Vegas/USA (Oral Presentation)

- **The role of charge distribution on the friction coefficients of epitaxial graphene grown on the Si-terminated and C-terminated faces of SiC;** Y Keskin, Ö Ünverdi, D Erbahar, İİ Kaya, C Çelebi; Carbon 2022 Carbon for a cleaner future, 3-8 July 2022

- **Comparing the shielding feature of graphene with impregnated activated carbon for gamma rays**, Ickecan, D., Türkan, M.N., Erbahar D., Gulbicim, H., , XV. International Conference on Nuclear Structure Properties, Kırıkkale University, Kırıkkale, Turkey (2022)

- **Probing The Phonon Spectrum Of Twisted Bilayer Graphene,** Dilara Ickecan, Erdi Ata Bledaa, Dogan Erbahar,Turkısh Physical Society 37th Internatıonal Physics Congress, September 1-5, 2021, Bodrum / Turkey

- **Towards room-temperature superconductivity in low-dimensional C_{60} nanoarrays,** Dogan Erbahar, Dan Liu, Savas Berber, David Tomanek, International Conference on Advanced Materials Modelling (ICAMM 2019), July

1–3, 2019; Rennes, France

- **Towards room-temperature superconductivity in low-dimensional carbon nanostructures,** David Tomanek, Dan Liu, Savas Berber, Dogan Erbahar, APS March Meeting 2018, March 5–9, 2018; Los Angeles, California

- **The miracle molecule C60 fullerene: Predictions from high-temperature superconductivity to astrobiology;** Dogan Erbahar, Turkish Physical Society 33. International Physics Congress (TPS-33), 6-10 September 2017, Bodrum, Turkey

- **Interlayer vacancy defects in AA-stacked bilayer graphene;** Amanda Vuong, Tom Trevethan, Christopher Latham, Chris Ewels, Dogan Erbahar, Malcolm Heggie; Faraday Joint Interest Group Conference 2017; 11-13 April 2017, University of Warwick, Coventry, UK

- **Investigation of the trigonal Cr3+ and Fe3+ centers in perovskite ABF3 crystals through a combination of ab initio (DFT) and semi-empirical (SPM) calculations;** Yakup Emül, Doğan Erbahar, Muhammed Açıkgöz**,** 12th International Nanoscience and Nanotechnology Conference (NANOTR-12), 03 – 05 June 2016, Elite Hotel Darıca, Kocaeli, Turkey

- **Fullerenes in Space : Fullerene-Water interaction and the origins of life** Dogan Erbahar, Toma Susi, Xavier Rocquefelte, Carla Bittencourt, Mattia Scardamaglia, Peter Guttmann, Georgios Rotas, Nikos Tagmatarchis, Xiaohui Zhu, Adam P. Hitchcock, and Chris P. Ewels, Fullerenes – Past, Present and Future Celebrating the 30th Anniversary of Buckminster Fullerene, 15-16th July 2015, Royal Society of Chemistry, Burlington House, UK

- **Atomic scale modeling of carbon nano-rings and nanotubes using first principles DFT approaches,** Jérémy Rio, Chris Ewels, Dogan Erbahar, Journee de Doctorants, 13-14 June 2015, Le Mans, France.

- **Predicting new carbon nanomaterials from first principles,** Chris Ewels, Jeremy Rio, Coline Adda, Jean-Joseph Adjizian, Dogan Erbahar, NanoMat2015, 27-30 May 2015, Rennes, France.

- **New Carbon nano-objects by design,** Chris Ewels, Jeremy Rio, Angelina Dorlando, Dogan Erbahar, Jean-Yves Mevellec, Bernard Humbert, Nano Korea 2015 Symposium, 1-3 July 2015, Coex, Seoul, Korea.
- **Nitrogen ion implantation in carbon nanostructures,** Carla Bittencourt, Mattia Scardamaglia, Claudia Struzzi, Dogan Erbahar, Nicolas Reckinger, Jean-François Colomer, Matteo Amati, Luca Gregoratti, Rony Snyders, Chris, Ewels, NT15 The Sixteenth International Conference on the Science and Applications of Nanotubes, 29 June – 3 July 2015, Nagoya, Japan

- **Calculating core level binding energies for graphene and azafullerenes**, *Toma Susi*, Duncan Mowbray, Mathias P. Ljungberg, Dogan Erbahar, Xavier Rocquefelte, Carla Bittencourt, Mattia Scardamaglia, Peter Guttmann, Georgias Rotas, Nikos Tagmatarchis, Xiaohui Zhu, Adam Hitchcock, Christopher P.

Ewels, Paolo Ayala, International Winterschool on Electronic Properties of Novel Materials, 07-14 March 2015, Kirchberg, Austria.

- **Nitrogenated graphene edges: a candidate for metal free oxygen reduction reaction catalysis**, Dogan Erbahar, Chris P. Ewels, Jeremy Rio, Patrick Briddon, Poster Presentation, 09-11 February 2015, Towards Reality in Nanoscale Materials VIII, Levi, Finland.

- **Modelling atomic-scale fluorine deposition processes on carbon nanomaterials using first principles DFT approaches**, Jeremy Rio, Dogan Erbahar, Patrick Briddon, Chris Ewels; Oral Presentation, 12th International Symposium on Bioscience and Nanotechnology, 14-15 November 2014, Tokyo, Japan.

- **Nitrogen Segregation in Nanocarbons,** Chris Ewels, Dogan Erbahar, Philipp Wagner, Xavier Rocquefelte, Raul Arenal, Pascal Pochet, Mark Rayson, Mattia Scardamaglia, Carla Bittencourt, Patrick R. Briddon, Poster presentation, 3. edition of the International Conference on Advanced Materials Modelling, ICAMM 2014, 7 - 9 July 2014, Nantes, France.

- **Nitrogen Segregation in Nanocarbons** C. P. Ewels, Ph. Wagner, *D. Erbahar*, X. Rocquefelte, O. Stephan, K March, M. Kociak, R. Arenal, A. Loiseau, M. Scardamaglia, P. Pochet, R. Snyders, C. Bittencourt, Poster presentation, Graphene 2014, 6 – 9 May 2014, Toulouse, France.

- **Electrostatic properties of graphitic nanostructures** Dogan Erbahar*,* Poster Presentation, NanoTP: Final Scientific Meeting, 2 - 5 April 2014, Nantes, France.

- **Electrostatic properties of graphitic nanostructures** Dogan Erbahar, Oral Presentation, 9. Nanoscience and Nanotechnology Conference NANOTR-IX 24 – 28 June 2013, Erzurum, Turkey.

- **Electrostatic properties of graphitic nanostructures** Dogan Erbahar, Oral Presentation, AIMPRO.2013 and MP0901 NanoTP WG4 meeting, 3 – 7 June 2013, University of Surrey, Guildford, UK.

- **Core level binding energy shifts in potassium covered carbon nanotubes: An *ab initio* study** Dogan Erbahar, Savas Berber, David Tomanek. Poster Presentation NanoTP 3. Annual Scientific Meeting 2012, 9-11 December 2012, Berlin, Germany.

- **Core level binding energy shifts in potassium covered carbon nanotubes: An *ab initio* study** Dogan Erbahar, Savas Berber, David Tomanek. Oral Presentation 8. Nanoscience and Nanotechnology Conference NANOTR-VIII 25 - 29 June 2012, Ankara, Turkey.

- **Core level binding energy shifts in potassium covered carbon nanotubes: An *ab initio* study** Dogan Erbahar, Savas Berber, David Tomanek. Invited Talk

NanoTP: Scientific meeting 2011, 9-11 November 2011, Trieste, Italy.

- **Changing the Charge State of C60 Nanoarrays** Dogan Erbahar, Savas Berber, David Tomanek Oral Presentation 7. Nanoscience and Nanotechnology Conference NANOTR-VII 27 June - 1 July 2011 Sabancı University, Istanbul, Turkey.

- **Changing the Charge State of C60 Nanoarrays** Dogan Erbahar, Savas Berber, David Tomanek Poster Presentation Atomic structure of nanosystems from transmission electron microscopy experiments and first-principles simulations (BOAT 2011) May 31 - June 02, 2011, Helsinki-Stockholm-Helsinki, Finland.

- **Phthalocyanine as sensitive coatings for QCM sensors-experimental and computational approaches** Dilek D. Erbahar, Dogan Erbahar, Mika Harbeck, Ilke Gurol, Emel Musluoglu, Zafer Z. Ozturk, Savas Berber. Oral Presentation 14th International Symposium on Olfaction and Electronic Nose (ISOEN 2011) 2-5 May 2011 Rockefeller University (1230 York Ave.) New York City, NY, USA.

- **Tuning the charge state of C60 nanoarrays by intercalation** Dogan Erbahar, Savas Berber, David Tomanek Oral Presentation BSW2011 Second Bozok Science Workshop: Computational Chemical Physics 21-23 April 2011, Bozok University, Yozgat, Turkey

- **All About Chlorinated Carbon Nanotubes** Dogan Erbahar, Savas Berber. Oral Presentation APS March Meeting 2011 21 - 25 March 2011 Dallas, TX, USA.

- **Probing Nanotube Defects with Chlorine Chemistry** Doğan Erbahar, Savaş Berber. Oral Presentation. Towards Reality in Nanoscale Materials '10 (TRNM '10) 6 – 8 December 2010 Levi, Finland.

- **Effect of Chlorine on Defective Carbon Nanotubes** Doğan Erbahar, Savaş Berber. Oral Presentation Turkish Physical Society 27. International Physics Congress 14 – 17 September 2010, Istanbul, Turkey.

- **Tuning the Physical Properties of Diamondoids** Doğan Erbahar, Savaş Berber. Oral Presentation 6. Ulusal Nanobilim ve Nanoteknoloji Konferansı NANOTR-VI. 15 – 18 June 2010, İzmir, Turkey.

- **Modifying the Physical Properties of Carbon Nanotubes: Chemistry on Defects** Savaş Berber, Doğan Erbahar, Ali Zerentürk, Tuba Coşkun. Oral Presentation 6. Nanoscience and Nanotechnology Conference NANOTR-VI. 15 – 18 June 2010, İzmir, Turkey.

- **Modification of the Carbon Nanotube Chemistry by Point Defects** Doğan Erbahar, Savas Berber. Poster Presentation. International Conference on Nanomaterials and Nanosystems NANOMATS 2009. 10 – 13 August 2009 İTÜ, İstanbul, Turkey.

- **The Chlorination of Carbon Nanotubes** Doğan Erbahar, Savaş Berber. Oral Presentation. 5. Nanoscience and Nanotechnology Conference NANOTR-V 8 – 12 June 2009, Eskişehir,Turkey.

- **Modifying physical properties of carbon nanostructures by chemical functionalization** Savas Berber, Ali Zerentürk, Doğan Erbahar. Modeling of Carbon and Inorganic Nanotubes and Nanostructures 13 – 15 May 2009 CECAM-HQ-EPFL, Lausanne, Switzerland.

THESIS ADVISORSHIPS:

- The Investigation of the Properties of 2D Nanostructures Using Machine Leaming Methods – Dilara İçkecan – Doktora (2021 – Present) – **Co-Advisor**

- Fullerenes in the Origin of Life – Eftal Gezer – Masters (Gebze, 2024) [CoHE Thesis Centre: 10500679] – **Co-advisor**

PROJECTS

- COST Action CA21126 Carbon molecular nanostructures in space (NanoSPACE) (27.10.2022 – Devam Ediyor) – **Working Group 1 Leader, Core Group and Management Commitee Member**

- The Investigation of The Properties of 2D Nanostructures Using Machine Learning Methods TUBITAK 1002 B Emergency Support Module Project, 2024/123F441 (01.02.2024- 01.08.2024) - **Advisor**

- Investigation of Nanotribological Properties of Twisted Bilayer Graphene Structures (15.04.2022 – Present) – TÜBİTAK 1001 - ARDEB – **Executive**

- Investigation of Nanotribological Properties of Twisted Bilayer and Multilayer Structures by Computational Methods (1.10.2021 – Present) – Doğuş Üniversitesi Bilimsel Araştırma Projesi – **Manager**

- NANOTP Designing novel materials for nanodevices: From Theory to Practice COST Action MP 0901 (2009-2014) - **Researcher**

REFEREEING:

- Zeitschrift für Physikalische Chemie (March - 2012)
- The Journal of Physical Chemistry (September - 2013)
- 2D Materials (June - 2014)
- Nanotechnology (August - 2014)

- Journal of Physics: Condensed Matter (May - 2015)
- Journal of Physics: Materials (September - 2018)
- Journal of Physics: Condensed Matter (November - 2018)
- Applied Surface Science (Ağustos - 2019)
- Carbon (2022-2023)

ORGANIZATIONAL EXPERIENCE:

- NanoSpace 2nd Joint Meeting – **Conference Chair**
- NANOTR-17 Nanoscience and Nanotechnology Conference – **Organizing Committee**
- International Conference on Engineering, Natural and Applied Science, ICENAS 2021 – **Scientific Committee**
- International Conference on Nanoscale Magnetism 2016 – **Organizing Committee (GENERAL COORDINATOR)**
- NANOTR-12 Nanoscience and Nanotechnology Conference – **Orginizing Committee (GENERAL COORDINATOR)**
  (**Video documentary available on demand**)
- 3. edition of the International Conference on Advanced Materials Modelling, ICAMM 2014 – **Organizing Committee**
- NanoTP Final Meeting 2014 – **Local Organizing Committee**
- International Conference on Nanoscale Magnetism 2013 – **Chief of Executive Comittee (Video documentary: https://www.youtube.com/watch?v=kQOqFkbwVMQ)**
- International Conference on Science for Defense and Security 2013 – **Chief of Executive Comittee**
- International Conference on Nanoscale Magnetism 2010 – **Executive Committee**
- International Conference on Nanoscale Magnetism 2007 – **Executive Comittee**

GRANTS:

- EU COST CA21126 – Short Term Scientific Mission (2023 June)
- TUBITAK 2219 – Abroad post-doctoral research support programme

- TUBITAK 2224 – Abroad conference support programme
- TÜBİTAK 2211-C – PhD. Grant Program for Domestic Priority Fields (as co-advisor of Dilara İçkecan)

SCHOOLS and COURSES:

- 21 June – 2 July 2010: National high performence computing center high performence computing and parallel programming summer school, Istanbul Technical university, Istanbul, Turkey.

- 19-29 Ekim 2009: International Advanced Research School in Physics- IARS Frontiers Workshop on DFT and its Applications in Nanosciencies, ITAP, Marmaris, Turkey.

- 10-21 Ağustos 2009: Modeling Nanostructures using Density Functional Theory, Izmir Institute of Technology, Izmir, Turkey.

- 09-20 Mart 2009: 40th IFF Spring School: Spintronics − From GMR to Quantum Information, Julich, Germany.

TEACHING EXPERIENCE:

CLASSROOM COURSES:

To undergraduates of Gebze Institute of Technology Physics Department

- Physics I – Mechanics
  - 2006/2007 Fall, 2007/2008 Fall, 2009/2010 Fall,
  - 2017/2018 Spring **(ENGLISH)**
  - 2018/2019 Fall **(ENGLISH)**
  - 2019/2020 Fall – DOU
  - 2020/2021 Fall – **(ENGLISH)** DOU
  - 2021/2022 Fall – DOU
  - 2022/2023 Fall – DOU
  - 2023/2024 Fall – DOU (Turkish and **ENGLISH** both sessions)
  - 2024/2025 Fall – DOU **(ENGLISH)**
- Physics II - Electricity and Magnetism **(ENGLISH)**
  - 2004/2005 Spring - GTU
  - 2005/2006 Spring - GTU
  - 2009/2010 Spring - GTU
  - 2017/2018 Fall - GTU
  - 2018/2019 Fall - GTU
  - 2019/2020 Spring – DOU (Turkish)
  - 2020/2021 Spring – DOU (Turkish)
  - 2019/2020 Spring – DOU (Turkish)
  - 2020/2021 Spring – DOU (Turkish)
  - 2020/2021 Summer – DOU (Turkish)
  - 2022/2023 Spring – DOU (Turkish)
  - 2023/2024 Spring – DOU (Turkish and **ENGLISH** sessions)

- Physics III – Vibrations and Waves **(ENGLISH)**
  - 2004/2005 Fall
  - 2005/2006 Fall
- Classical Mechanics I **(ENGLISH)**
  - 2018/2019 Spring - DOU
- Mathematics - IV
  - 2006/2007 Spring
  - 2007/2008 Spring
- Modern Physics I **(ENGLISH)**
  - 2018/2019 Spring – DOU
  - 2019/2020 Spring – DOU
  - 2020/2021 Spring – DOU
  - 2021/2022 Spring – DOU
  - 2022/2023 Spring – DOU
- Modern Physics I (Turkish)
  - 2018/2019 Spring – DOU
  - 2019/2020 Spring – DOU
  - 2021/2021 Spring – DOU
  - 2021/2022 Spring – DOU
  - 2022/2023 Spring – DOU
- Solid State Physics for Engineers (Turkish)
  - 2020/2021 Fall – DOU
  - 2021/2022 Fall – DOU
  - 2022/2023 Fall – DOU
  - 2023/2024 Fall – DOU
  - 2024/2025 Fall – DOU
- Solid State Physics for Engineers (**ENGLISH**)
  - 2020/2021 Fall – DOU
  - 2020/2021 Summer – DOU
  - 2021/2022 Spring – DOU
  - 2022/2023 Fall – DOU
  - 2023/2024 Fall – DOU
  - 2024/2025 Fall – DOU
- Quantum Mechanics I **(ENGLISH)**
  - 2008/2009 Fall
- Quantum Mechanics II **(ENGLISH)**
  - 2008/2009 Spring
- Nuclear Physics and Particle Physics **(ENGLISH)**
  - 2010/2011 Fall

PROJECT COURSES:

To last year undergraduates of Gebze Institute of Technology Physics Department

- Phys 492 Final Project
  - 2010/2011 Spring – Volga Sengul, Investigating the characteristic harmonics of musical instruments
  - 2011/2012 Spring – Cuneyt Deniz, Approaching quantum mechanical problems with variational principle

- Graduation Project (MM 492) (Turkish)
    - 2020/2021 Summer – DOU Mechanical Engineering
    - 2021/2022 Spring – DOU Mechanical Engineering
- Graduation Project (ME 492) (English)
    - 2023/2024 Spring – DOU Mechanical Engineering
- Research Project (MM 491) (Turkish)
    - 2021/2022 Fall – DOU Mechanical Engineering
- Research Project (ME 491)
    - 2021/2022 Fall – DOU Mechanical Engineering
    - 2022/2023 Fall – Mechanical Engineering
    - 2023/2024 Fall – DOU Mechanical Engineering
    - 2024/2025 Fall – DOU Mechanical Engineering
- Graduation Project (ME 492)
    - 2021/2022 Spring – DOU Mechanical Engineering

To graduates of Universite de Nantes

- Master 2 Spécialité : Nanosciences, nanomatériaux et nanotechnologies **(ENGLISH)**
    - 2014/2015 Fall – Eric Sy, Colline Adda, Molecular dynamics investigation of CPP's

PROBLEM SESSIONS and LABORATORY COURSES

To the undergraduates from various departments at Gebze Institute of Technology

- Electricity and Magnetism Problem Session (Phys 122)
    - 2010/2011 Spring
- Laboratory I – Mechanics (Phys 151)
    - 2011/2012 Fall
    - 2012/2013 Fall
    - 2013/2014 Fall
    - 2015/2016 Fall
    - 2018/2019 Fall
- Laboratory II – Electricity and Magnetism (Phys 152)
    - 2011/2012 Spring
    - 2012/2013 Spring
- Modern Physics Laboratory (Phys 406)
    - 2009/2010 Spring
    - 2010/2011 Spring
    - 2011/2012 Spring
    - 2014/2015 Spring
    - 2015/2016 Spring

EDUCATIONAL MATERIALS:

- Introduction to experimental methods – Basic concepts, Analysis Methods (2015)
  http://www.gtu.edu.tr/Files/UserFiles/90/Deneysel_metotlara_giri_1.pdf

- Gebze Technical University Physics Lab I Experiment Guide, Experiment 2: Newton Laws Experiment Guide - 2015

- Gebze Technical University Physics Lab I Experiment Guide, Experiment 6: Simple Pendulum Experiment Guide - 2015

- Gebze Technical University Physics Lab I Experiment Guide, Experiment 9: Free Fall and Atwood Machine Experiment Guide – 2015

- Physics 1, Physics 2 and Modern Physics Course Videos and Analysis Methods Videos (Youtube Channel)
  https://www.youtube.com/user/Dogan979/videos

POPULAR SCIENCE COMMUNICATION ACTIVITIES:

Personal Youtube physics channel: https://www.youtube.com/@DoganErbahar

Dünyadaki yaşamın tohumları uzaydan gelmiş olabilir, Hürriyet, 28 December 2016 (**The seeds of life on Earth might have come from space**) Article about research work in Hurriyet, leading newspaper of Turkey

http://www.hurriyet.com.tr/dunyadaki-yasamin-tohumlari-uzaydan-gelmis-olabilir-40320245

Oda sıcaklığında süperiletkenlik için yeni bir umut: Nanobezelyeler, Bilim ve Teknik, Nisan 2019 – **COVER ARTICLE**
(Nanopeapods: a new hope for room temperature superconductivity)
http://www.bilimteknik.tubitak.gov.tr/makale/oda-sicakliginda-superiletkenlik-icin-yeni-bir-umut-nanobezelyeler

AB, Türk araştırmacının çalışmasına hayran kaldı – Gazete Haberi

https://www.turkiyegazetesi.com.tr/teknoloji/ab-turk-arastirmacinin-calismasina-hayran-kaldi-870984

Enerji israfına çözüm arayacak bilim insanlarına TÜBİTAK'tan destek
(TUBITAK support scientists who investigates energy waste problem)
https://www.iha.com.tr/haber-enerji-israfina-cozum-arayacak-bilim-insanlarina-tubitaktan-destek-1029340/

Savunma Sanayisi Teknolojilerine Doğuş Üniversitesi'nden Katkı
(Dogus University Contribution to Defense Technlologies)
http://akademikbakis.info/savunma-sanayisi-teknolojilerine-dogus-universitesinden-katki/

PERSONAL HOBIES:

- Piano playing, sailing, amateur astronomy, playing chess, playing go, archery, amateur radio