

## **Professor Eser OLĞAR**



### **Affiliation:**

University of Gaziantep, Faculty of Engineering, Department of Physics Engineering,  
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### **Education**

- Ph.D.** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering.  
Thesis: "Differential Realizations of the Various Lie Superalgebra and Their Applications  
to the Physical Problems"
- M.Sc** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering  
(Mathematical Physics) (1999 – 2002). Thesis: " An Algebraic Approach to the Band  
Structure of Periodic Potentials"
- B.Sc** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering  
(1994 – 1999).

### **Academic Positions Held**

**Research Assistant:** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering  
(1999 –2006).

**Assistant Professor:** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering  
(2007).

**Associate Professor:** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering  
(2010).

**Professor:** University of Gaziantep, Faculty of Engineering, Department of Physics Engineering (2015-  
Continue).

## **Thesis Supervised**

### **MSc:**

1. Aram Bahroz BRZO, "Solution of Klein-Gordon equation in D-dimension and its application in physical systems", 2016.
2. Rasul NABAZ, "The determination of eigenvalues of Klein-Gordon equation with Position Dependent Mass For Exponential Type Potentials", Gaziantep Üniversitesi, Ocak 2013.
3. Hayder DHahir, "Dirac equation with position-dependent mass and its application", Gaziantep Üniversitesi, Haziran 2013.
4. Özgür ÖZTEMEL, "Algebraic Solution Methods of Diatomic and Triatomic Linear Molecules", Gaziantep Üniversitesi, Haziran 2013.
5. Mutaf, H., "Pozisyonu Bağlı Kütle içeren Klein-Gordon Denkleminin Elde edilmesi ve Fiziksel sistemlere uygulamaları", Gaziantep Üniversitesi, 2011.
6. Kadir Kürşad AYIK, Acoustical Analysis and Evaluation of Cultural Centers at Gaziantep University, 2018.
7. Mehmet UNCU, "Acoustical Analysis and Evaluation of some Culture and Art Centers in Gaziantep", 2019-Continue.
8. Tesnim SAFADI, "An experimental Study on the Acoustic Properties of Polyester Resin", 2021-Continue.
9. Bshir ZAITER, "A Study On The Effects of Ultrasonic Waves On Structure Of Some Composites", 2021- Continue.

### **PHd**

1. Mutaf, H., "Tam yansız ve çınlanım odalarının düşük frekanslarda performanslarının incelenmesi", Gaziantep Üniversitesi, 2012-Continue.
2. Berk, Yıldız., "Investigation on the solution of Dirac-Pauli equation and its applications", 2019.

### **Publications**

1. Brzo, AB, Olgar, E, and Hussein, HG, "The Klein-Gordon equation with a generalized Morse potential in D-dimensions", European Physical Journal Plus, 136 (10), 1007 (2021), doi:10.1140/epjp/s13360-021-01752-x.
2. Y. B. Ateş, U. S. Okorie, A. N. Ikot and Eser Olğar, "Analytical solution of the Schrödinger equation for isotropic velocity-dependent Potentials", Phys. Scr. 94: 115705 (2019).
3. A. N. IKOT, Eser Olğar, H. HASSANABADI, "The Analytical Solutions of the Schrödinger Equation with Generalized Hulthen Plus A New Ring Shaped Like Potential", Gazi University Journal of Science GU J Sci 29(4):937-946 (2016).
4. Eser Olğar, and Haydar Mutaf, "Bound-State Solution of s-Wave Klein-Gordon Equation for Woods-Saxon Potential", Advances in Mathematical Physics, Volume 2015, Article Number: 923076 (2015).
5. Ramazan Koç, Eser Olğar, and Haydar Mutaf, "A Novel Approach to Solve Quasi-exactly Solvable Pauli Equation", Advances in Mathematical Physics, Volume 2015, Article Number: 304093 (2015).

6. Öztemel Özgür Eser Olgar. "An alternative solution of Diatomic Molecules", Cent. Eur. J. Phys., 12 (2), 103-110 (2014).
7. Eser Olgar, M. Dahir Hayder, Mutaf Haydar, "Bound state of solution of Dirac-Coulomb problem with spatially dependent mass", Cent. Eur. J. Phys., 12 (4), 292-296 (2014).
8. Ramazan Koç, Hayriye Tütüncüler, and Eser Olgar, "Reply to Comment on "A solution of the bosonic and algebraic Hamiltonians by using an AIM", J. Phys. A: Math. Gen. 44, 228002 (2011).
9. Ramazan Koç, Hayriye Tütüncüler, and Eser Olgar, "A solution of the bosonic and algebraic Hamiltonians by using an AIM", J. Phys. A: Math. Gen. 43, 395208 (2010).
10. Ramazan Koç, and Eser Olgar, "Calculation of the eigenfunctions and eigenvalues of Schrödinger type equations by asymptotic Taylor expansion method (ATEM)", Preprint, [arXiv:1008.0697](https://arxiv.org/abs/1008.0697) (2010).
11. Eser Olgar, and Haydar Mutaf, "Asymptotic Iteration Method for Energies of Inversely Linear Potential with Spatially Dependent Mass", Comm. in Theor. Phys. 53, 1043-1045, (2010).
12. Eser Olgar, "An Alternative Method for Calculating Bound-State of Energy Eigenvalues of Klein-Gordon for Quasi-exactly Solvable Potentials", Chin. Phys. Lett. No. 26, 020302 (2009).
13. Eser Olgar, Ramazan Koç, and Hayriye Tütüncüler, "Exact Solution of the s-wave Klein–Gordon Equation for the generalized Hulthén potential by Asymptotic Iteration Method", Phys. Scr. 78, 015011 (4pp) (2008).
14. Eser Olgar, "Exact Solution of Klein–Gordon Equation by Asymptotic Iteration Method", Vol. 25, Chin. Phys. Lett. No. 6, 1939 (2008).
15. Eser Olgar, Ramazan Koç, and Hayriye Tütüncüler, "Bound states of the s-wave Klein-Gordon equation with equal scalar and vector Standard Eckart Potential ", Chin. Phys. Lett. 23, No. 3 539 (2006).
16. Ramazan Koç, Hayriye Tütüncüler, Mehmet Koca, and Eser Olgar, "Algebraic treatments of the problems of the spin-1/2 particles in the one and two-dimensional geometry: a systematic study ", Annals of Phys. 319, 333-347 (2005).
17. B. Gönül, N. Çelik, and Eser Olgar, "A new algebraic Approach to Perturbation Theory", Mod. Phys. Lett. A 20, 1683 (2005).
18. Hayriye Tütüncüler, Ramazan Koç, and Eser Olgar, "Solution of Hamiltonian of quantum dots with Rashba spin-orbit coupling:quasi-exact solution", J. Phys. A: Math. Gen. 37, 11431 (2004).
19. Ramazan Koç, Hayriye Tütüncüler, and Eser Olgar,"Spectra of Interacting Electrons in a Quantum Dot: Quasi-Exact Solution" J. Kor. Phys. Soc. 45, 837-840 (2004).
20. Ramazan Koç, Hayriye Tütüncüler, and Eser Olgar, "Exactly and Quasi-Exactly Solvable two-mode Bosonic Hamiltonians", Chinese J. Physics 42, 575-584 (2004).

#### Other Publications:

1. Eser Olgar, and Haydar Mutaf, "Bound-state solutions of Klein-Gordon equation for the inversely linear potential", TFD-26, Bodrum, 2009.
2. Haydar MUTAF, Eser OLĞAR, Ramazan KOÇ and Hakan ÇİFTÇİ, "Solution of Pauli Equation with Asymptotic Iteration Method", TFD-27, İstanbul, 2010.
3. Eser OLĞAR, "Approximate Solution of Two Mode Bosonic Hamiltonian", "Workshop on Quantization, Dualities and Integrable System IV, 1-4 February 2005, Abant İzzet Baysal University, Bolu.

4. KAMILOĞLU RANA, İLGÜREL MEHMET NURİ, **OLĞAR ESER**, "Eğitim Mekânlarında Akustik Konfor Koşullarının Değerlendirilmesi: Mimarlık Fakültesi Örneği", 2. Mimarlık Ve Şehircilik Lisansüstü Sempozyumu, Yayın Yeri: 2. Mimarlık Ve Şehircilik Lisansüstü Sempozyumu, İstanbul, 2020.
5. Mehmet UNCU, **Eser OLĞAR**, "Gaziantep, Şehitkamil İlçesinde Bulunan 3 Adet Çok Amaçlı Salonun Akustik Analizi ve Değerlendirilmesi", 5. Uluslararası Bilimsel Çalışmalar Kongresi, 15-17 Mart, 2021.
6. **Eser OLĞAR**, "An Algebraic Approach to the Band structure of the periodic potentials", University of Gaziantep, MSc thesis, 2002.
7. **Eser OLĞAR**, "Differential Realizations of the various Lie Superalgebra and Their Applications to the Physical Problems", University of Gaziantep, PhD thesis, 2006.

#### Projects:

1. "Gaziantep ili Merkezi Alanlarının ve Organize Sanayi Bölgelerinin Gürültü Haritaların Çıkarılması", BAP Projesi, **Proje Yürüttücüsü**, 2009-2010, Proje No: MF.09.03, destek miktarı: 25.680,97 Lira.
2. "Hidrojen Enerjisinin Maksimum Verimlilikte Uzaktan Kontrol (Kumanda) yardımıyla Bir Araba Üzerinde Uygulanması", **Proje Yetkilisi**, 2011-2012, Proje No: MF.11.11, destek miktarı: 24.998,98 Lira.
3. "Çok amaçlı salonların hacim akustiği açısından incelenmesi ve değerlendirilmesi", **Proje Yürüttücüsü**, Proje No: MF.14.24, 2015-devam ediyor, destek miktarı: 170.540 Lira.
4. "Gişe Geçişleri İçin Aktif Gürültü Bariyeri", **Proje İzleyicisi**, Bilim, Sanayi ve Teknoloji Bakanlığı San-Tez Projesi, Proje No: 0553.STZ.2013-2, 2014-devam, destek miktarı: 350.350 Lira.
5. "Gaziantep üniversitesi kampüs alanında gürültü haritasının çıkarılması", Doktora Tezi Araştırma Projesi, **Proje Yürüttücüsü**, 2009-2010, Proje No: MF.09.03, destek miktarı: 14.998 Lira.

#### Research Interest

Solution of the Relativistic and Non-relativistic wave equations and its application in physics.

Algebraic methods, Supersymmetric Quantum mechanics.

Few-body problems and Many-body problems.

Exactly and quasi-exactly solvable systems.

Group Theory and its application in Atomic and Molecular and Condensed Matter Physics.

Architectural Acoustics.

### **Edited journals**

International Journal of Physics: Study and Research

International Journal of Mathematical Physics

### **Refereed journals**

Journal of Advances in Mathematics and Computer Science

Physical Science International Journal

Sri Lankan Journal of Physics

Zeitschrift fuer Naturforschung A

Advances in Research

Asian Journal of Mathematics and Computer Research

British Journal of Mathematics & Computer Science

Indian Journal of Physics

### **Training and Certifications:**

1. D-1 Basic Building Acoustics Certificate Program and Trainer Certificate, 2019.
2. C-1 Type Building Acoustics Certificate Program, TMMOB Fizik Mühendisleri Odası, Sertifika, 06.05.2017 -09.05.2019.
3. A-2 Type Engineering Acoustics Certificate program, TMMOB Fizik Mühendisleri Odası, Sertifika, 23.12.2010 -26.12.2010.
4. SoundPlan Training Certificate, Preparation of Noise Maps with SoundPlan Essential, Hidrotek Mimarlık Mühendislik, Sertifika, 04.05.2017 -04.05.2017
5. III. Fizik Mühendisliği Eğitim Çalıştayı, Ankara Üniversitesi Mühendislik Fakültesi Dekanlık Konferans, Mayıs 2015.
6. 10. National Acoustics Congress, Yıldız Teknik Üniversitesi, 16.12.2013 -17.12.2013.
7. Evaluation and Reporting of Environmental Noise, Gaziantep Üniversitesi, Seminer, 03.03.2012.