

ALEV DEVRİM GÜÇLÜ

Associate Professor

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İzmir Yüksek Teknoloji Enstitüsü Urla 35430

Education

PhD 1999-2003	McGill University Theoretical Condensed Matter Physics Electronic and transport properties of quantum dots (1999) Supervisor: Hong Guo
Masters 1997-1999	Ecole Polytechnique de Montreal Engineering Physics Monte Carlo simulation of optoelectronic devices (1999) Supervisor: Romain Maciejko
Undergrad 1993-1997	Ecole Polytechnique de Montreal Engineering Physics

Experience

ASSOCIATE PROF 2015	Izmir Institute of Technology
ASSISTANT PROF 2014-2015	Izmir Institute of Technology
RESEARCH ASSOC 2012-2014	Izmir Institute of Technology
RESEARCH ASSOC 2008-2012	National Research Council of Canada)
RESEARCH ASSISTANT 2006-2008	Duke University
RESEARCH ASSISTANT 2003-2006	Cornell University
RESEARCH ASSISTANT 1998-2003	McGill University

Thesis supervising

Masters

2019

1. KOLAY ANIL, (2019). Spin-spin interactions of magnetic impurities in graphene nanoribbons, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri Enstitüsü->Fizik Anabilim Dalı
2. KUL ERDOĞAN BULUT, (2019). Grafen kuantum noktaların düzensizliklerden doğan elektrik ve manyetik özellikleri, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri Enstitüsü->Fizik Anabilim Dalı

2018

3. ÇAKMAK KORHAN ERTAN, (2018). Effects of random atomic disorder on electronic and magnetic properties of graphene nanoribbons, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri

2016

4. ÖZDEMİR HAKAN ULAŞ, (2016). Electronic, magnetic and optical properties of graphene nanoribbons, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri Enstitüsü->Fizik Anabilim Dalı

PhD

2018

5. ALTINTAŞ ABDULMENAF, (2018). Electronic, magnetic and optical properties of disordered graphene quantum dots, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri Enstitüsü->Fizik Anabilim

2016

6. POLAT MUSTAFA, (2016). Electronic and transport properties of disordered graphene nanostructures, İzmir Yüksek Teknoloji Enstitüsü->Mühendislik ve Fen Bilimleri Enstitüsü->Fizik Anabilim Dalı

Awards & Scholarshs

1. BAGEP, Bilim Akademisi, 2013
2. Yurda Dönüş Araştırma Bursu, TÜBİTAK, 2012
3. Postdoctoral fellowship, FCAR, KANADA, 2003
4. Dow Hickson Fellowship, McGill University, KANADA, 2002
5. Doctoral fellowship, FCAR, KANADA, 2001

Teaching

2018-2019

Undergrad

QUANTUM MECHANİCS 3

CLASSİCAL MECHANİCS 1

CLASSİCAL MECHANİCS 2

MODERN PHYSİCS

Masters

SCİENTİFİC METHODS AND ETHİCS

2017-2018

Undergrad

CLASSİCAL MECHANİCS 2

Kuantum mekaniği 2

Classical Mechanics 1

QUANTUM MECHANİCS 1

Masters

SCİENTİFİC METHODS AND ETHİCS

Publications

A. International Journals

1. Altıntaş Abdulmenaf,GÜÇLÜ ALEV DEVRİM (2018). Defect induced Anderson localization and magnetization in graphene quantum dots. *Solid State Communications*, 281, 44-48., Doi:
2. Çakmak Korhan Ertan,Altıntaş Abdulmenaf,GÜÇLÜ ALEV DEVRİM (2018). Effects of random atomic disorder on the magnetic stability of graphene nanoribbons with zigzag edges. *Physical*
3. Jaworowski Błażej,GÜÇLÜ ALEV DEVRİM,Kaczmarkiewicz Piotr,Kupczyński Michał,Potasz Paweł,Wójs Arkadiusz (2018). Wigner crystallization in topological flat bands. *New Journal of*
4. Modarresi Mohsen,GÜÇLÜ ALEV DEVRİM (2017). Effects of interedge scattering on the Wigner crystallization in graphene nanoribbons. *Physical Review B*, 95(23), Doi:
5. ALTINTAŞ ABDULMENAF,Çakmak K E,GÜÇLÜ ALEV DEVRİM (2017). Effects of long-range disorder and electronic interactions on the optical properties of graphene quantum dots.
6. Özdemir Hakan Ulaş,GÜÇLÜ ALEV DEVRİM (2016). Magnetic phases of graphene nanoribbons under potential fluctuations. *Physical Review B*, 93(1), Doi: 10.1103/PhysRevB.93.014415
7. GÜÇLÜ ALEV DEVRİM (2016). Wigner crystallization at graphene edges. *Physical Review B*, 93(4), Doi: 10.1103/PhysRevB.93.045114 (Yayın No: 3266503)
8. GÜÇLÜ ALEV DEVRİM,BULUT NEJAT (2015). Spin spin correlations of magnetic adatoms on graphene. *Physical Review B*, 91(12), Doi: 10.1103/PhysRevB.91.125403 (Yayın No: 2033886)
9. Paweł Potasz,GÜÇLÜ ALEV DEVRİM,İsıl Ozfidan,Paweł Hawrylak (2015). Spin orbit coupling and optical detection of spin polarisation in triangular graphene quantum dots. *International Journal*
10. Isıl Ozfidan,Marek Korkusinski,GÜÇLÜ ALEV DEVRİM,John A McGuire,Paweł Hawrylak (2014). Microscopic theory of the optical properties of colloidal graphene quantum dots. *Physical*
11. GÜÇLÜ ALEV DEVRİM,Potasz Paweł,Paweł Hawrylak (2013). Zero energy states of graphene triangular quantum dots in a magnetic field. *Physical Review B*, 88(15), Doi: 10.1103/PhysRevB.88.155429 (Yayın No: 940117)
12. GÜÇLÜ ALEV DEVRİM,Marek Grabowski,Paweł Hawrylak (2013). Electron electron interactions and topology in the electronic properties of gated graphene nanoribbon rings in Möbius and cylindrical configurations. *Physical Review B*, 87(3), Doi: 10.1103/PhysRevB.87.035435 (Yayın
13. GÜÇLÜ ALEV DEVRİM,Paweł Hawrylak (2013). Optical control of magnetization and spin blockade in graphene quantum dots. *Physical Review B*, 87(3), Doi: 10.1103/PhysRevB.87.035425 (Yayın No: 940135)
14. Wei-dong Sheng,Marek Korkusinski,GÜÇLÜ ALEV DEVRİM,Michał Zielinski,Paweł Potasz,Eugene S Kadantsev,Oleksandr Voznyy,Hawrylak Paweł (2012). Electronic and optical properties of semiconductor and graphene quantum dots. *Frontiers of Physics*, 7(3), 328-352., Doi: 10.1007/s11467-011-0200-5 (Yayın No: 939991)
15. Potasz Paweł,GÜÇLÜ ALEV DEVRİM,Wojs Alexandre (2012). Electronic properties of gated triangular graphene quantum dots Magnetism correlations and geometrical effects. *Physical Review B*, 85(7), Doi: 10.1103/PhysRevB.85.075431 (Yayın No: 939957)
16. GÜÇLÜ ALEV DEVRİM,Paweł Potasz,Paweł Hawrylak (2011). Electric field controlled spin in bilayer triangular graphene quantum dots. *Physical Review B*, 84(3), Doi: 10.1103/PhysRevB.84.035425 (Yayın No: 940001)
17. Paweł Potasz,GÜÇLÜ ALEV DEVRİM,Oleksandr Voznyy,JA Folk,Paweł Hawrylak (2011). Electronic and magnetic properties of triangular graphene quantum rings. *Physical Review B*, 83(17), Doi: 10.1103/PhysRevB.83.174441 (Yayın No: 939971)
18. Oleksandr Voznyy,GÜÇLÜ ALEV DEVRİM,Paweł Potasz,Paweł Hawrylak (2011). Effect of edge reconstruction and passivation on zero energy states and magnetism in triangular graphene quantum dots with zigzag edges. *Physical Review B*, 83(16), Doi: 10.1103/PhysRevB.83.165417 (Yayın No: 939963)
19. GÜÇLÜ ALEV DEVRİM,Paweł Potasz,Paweł Hawrylak (2010). Excitonic absorption in gate controlled graphene quantum dots. *Physical Review B*, 82(15), Doi: 10.1103/PhysRevB.82.155445 (Yayın No: 939952)
20. Paweł Potasz,GÜÇLÜ ALEV DEVRİM,Paweł Hawrylak (2010). Spin and electronic correlations in gated graphene quantum rings. *Physical Review B*, 82(7), Doi: 10.1103/PhysRevB.82.075425 (Yayın No: 940010)

21. Pawel Potasz,GÜÇLÜ ALEV DEVRİM,Pawel Hawrylak (2010). Zero energy states in triangular and trapezoidal graphene structures. *Physical Review B*, 81(3), Doi: 10.1103/PhysRevB.81.033403 (Yayın No: 939920)
22. Pawel Potasz,GÜÇLÜ ALEV DEVRİM,Oleksandr Voznyy,Marek Korkusinski,Pawel Hawrylak (2009). Magnetism and Correlations in Fractionally Filled Degenerate Shells of Graphene Quantum Dots. *Physical Review Letters*, 103(24), Doi: 10.1103/PhysRevLett.103.246805 (Yayın No: 939909)
23. GÜÇLÜ ALEV DEVRİM,Cyrus Umrigar,Hong Jiang,Harold Baranger (2009). Localization in an inhomogeneous quantum wire. *Physical Review B*, 80(20), Doi: 10.1103/PhysRevB.80.201302 (Yayın No: 939983)
24. GÜÇLÜ ALEV DEVRİM,Amit Ghosal,Cyrus Umrigar,Harold Baranger (2008). Interaction induced strong localization in quantum dots. *Physical Review B*, 77(4), Doi: 10.1103/PhysRevB.77.041301 (Yayın No: 939938)
25. Amit Ghosal,GÜÇLÜ ALEV DEVRİM,Cyrus Umrigar,Denis Ullmo,Harold Baranger (2007). Incipient Wigner localization in circular quantum dots. *Physical Review B*, 76(8), Doi: 10.1103/PhysRevB.76.085341 (Yayın No: 939932)
26. Amit Ghosal,GÜÇLÜ ALEV DEVRİM,CJ Umrigar,Denis Ullmo,Baranger Harold (2006). Correlation induced inhomogeneity in circular quantum dots. *Nature Physics*, 2(5), 336-340., Doi: 10.1038/nphys293 (Yayın No: 939913)
27. Gun Jeon,GÜÇLÜ ALEV DEVRİM,Cyrus Umrigar,Jainendra Jain (2005). Composite fermion antiparticle description of the hole excitation in a maximum density droplet with a small number of electrons. *Physical Review B*, 72(24), Doi: 10.1103/PhysRevB.72.245312 (Yayın No: 939926)
28. GÜÇLÜ ALEV DEVRİM,Gun Jeon,Cyrus Umrigar,Jainendra Jain (2005). Quantum Monte Carlo study of composite fermions in quantum dots The effect of Landau level mixing. *Physical Review B*, 72(20), Doi: 10.1103/PhysRevB.72.205327 (Yayın No: 939926)
29. GÜÇLÜ ALEV DEVRİM,Cyrus Umrigar (2005). Maximum density droplet to lower density droplet transition in quantum dots. *Physical Review B*, 72(4), Doi: 10.1103/PhysRevB.72.045309 (Yayın No: 939987)
30. GÜÇLÜ ALEV DEVRİM,Qing Sun,Hong Guo (2003). Kondo resonance in a quantum dot molecule. *Physical Review B*, 68(24), Doi: 10.1103/PhysRevB.68.245323 (Yayın No: 939945)
31. GÜÇLÜ ALEV DEVRİM,Jian-Sheng Wang,Hong Guo (2003). Disordered quantum dots A diffusion quantum Monte Carlo study. *Physical Review B*, 68(3), Doi: 10.1103/PhysRevB.68.035304 (Yayın No: 939967)
32. GÜÇLÜ ALEV DEVRİM,Qing Feng Sun,Hong Guo,Richard Harris (2002). Geometric blockade in a quantum dot Transport properties by exact diagonalization. *Physical Review B*, 66(19), Doi: 10.1103/PhysRevB.66.195327 (Yayın No: 939996)
33. GÜÇLÜ ALEV DEVRİM,Celey Rejeb,Maciejko Romain (1999). Photoluminescence study of carrier dynamics and recombination in a strained InGaAsP InP multiple quantum well structure. *JOURNAL OF APPLIED PHYSICS* (Yayın No: 940109)
34. GÜÇLÜ ALEV DEVRİM,Romain Maciejko,Alain Champagne (1998). Comparison between the Monte Carlo method and the drift diffusion approximation in quantum well laser simulation. *JAPANESE JOURNAL OF APPLIED PHYSICS* (Yayın No: 940157)

B. International Proceedings:

1. Güçlü A D, Guo Hong Exact diagonalization and Quantum Monte Carlo studies of quantum dots. *HIGH PERFORMANCE COMPUTING SYSTEMS AND APPLICATIONS* (Tam Metin Bildiri)(Yayın No:940340)
2. Potasz P, Güçlü A D, Özfidan I, et al Graphene based integrated electronic photonic and spintronic circuit. *MICRO- AND NANOTECHNOLOGY SENSORS, SYSTEMS, AND APPLICATIONS V* (Tam Metin Bildiri)(Yayın No:940181)
3. Güçlü A D, Potasz P, Hawrylak P Optical Properties of Graphene Quantum Dots with Fractionally Filled Degenerate Shell of Zero Energy States. *PHYSICS OF SEMICONDUCTORS: 30TH INTERNATIONAL CONFERENCE ON THE PHYSICS OF SEMICONDUCTORS* (Tam Metin Bildiri)(Yayın No:940331)
4. Güçlü A D, Maciejko R, Champagne A, et al Multiple quantum well laser simulation a comparison between the Monte Carlo method and the drift diffusion approximation. *APPLICATIONS OF PHOTONIC TECHNOLOGY 3* (Tam Metin Bildiri)(Yayın No:940349)
5. GÜÇLÜ ALEV DEVRİM (2018). Magnetic properties of disordered graphene nanoribbons. 4th *NANOSCIENCE AND NANOTECHNOLOGY CONFERENCE* (Özet Bildiri/Sözlü Sunum)(Yayın No:4700776)
6. ALTINTAŞ ABDULMENAF,ÇAKMAK KORHAN,GÜÇLÜ ALEV DEVRİM (2017). Optical properties of disordered graphene quantum dots. *Graphene Week* (Özet Bildiri/Poster)(Yayın No:3740139)
7. GÜÇLÜ ALEV DEVRİM (2017). Wigner Crystallization in Graphene Nanoribbons. *İstatistiksel Fizik Günleri 2017* (Özet Bildiri/Davetli Konusmacı)(Yayın No:3760241)

8. ALTINTAŞ ABDULMENAF,ÇAKMAK KORHAN,GÜÇLÜ ALEV DEVRİM (2017). Optical properties of disordered graphene quantum dots. DPG-Frühjahrstagung (DPG Spring Meeting) (Özet Bildiri/Sözlü Sunum)(Yayın No:3667094)
9. GÜÇLÜ ALEV DEVRİM (2017). Wigner crystallization in graphene nanoribbons with zigzag edges. Deutsche Physikalische Gesellschaft 2017 Spring meeting (Özet Bildiri/Sözlü Sunum)(Yayın No:3760638)
10. Pawel Potasz,GÜÇLÜ ALEV DEVRİM,Pawel Hawrylak (2009). Electronic Shells of Dirac Fermions in Graphene Quantum Rings in a Magnetic Field. 4th Workshop on Quantum Chaos and Localisation Phenomena (Tam Metin Bildiri/)(Yayın No:940078)

C. International Books

1. Graphene Quantum Dots (2014)., GÜÇLÜ ALEV DEVRİM,Pawel Potasz,Marek Korkusinski,Hawrylak Pawel, Springer Berlin Heidelberg, Editör:Phaedon Avouris, Basım sayısı:1, ISBN:978-3-662-44610-2, İngilizce(Bilimsel Kitap), (Yayın No: 2036215)

D. National Proceedings

1. GÜÇLÜ ALEV DEVRİM (2015). Zikzak grafen kenarlarında Wigner kristalleşmesi. 21. Ankara Yoğun Madde Fiziği Toplantısı (/)(Yayın No:2038951)
 2. GÜÇLÜ ALEV DEVRİM (2015). Grafende Manyetik Adatomlar Arası Spin Spin Korelasyonu. 4. İzmir Yoğun Madde Fiziği Toplantısı (Özet Bildiri/)(Yayın No:2038559)
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