

# Prof. BEKİR SITKI KANDEMİR

## Personal Information

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## International Researcher IDs

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## Education Information

Doctorate, Ankara University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 1989 - 1993

Postgraduate, Ankara University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), Turkey 1987 - 1989

Undergraduate, Ankara University, Fen Fakültesi, Turkey 1981 - 1986

## Dissertations

Doctorate, Elektron-fonon etkileşmesi ve polaronlar, Ankara University, Fen Bilimleri Enstitüsü, Fizik (Dr), 1993

Postgraduate, Faz geçişleri civarında saçılma teorisi, Ankara University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 1989

## Academic Titles / Tasks

Professor, Ankara University, Fen Fakültesi, 2003 - Continues

Associate Professor, Ankara University, Fen Fakültesi, 1998 - 2003

Assistant Professor, Ankara University, Fen Fakültesi, 1993 - 1998

Research Assistant, Ankara University, Fen Fakültesi, 1987 - 1993

## Courses

MEKANİK II LAB., Undergraduate, 2015 - 2016, 2010 - 2011, 2008 - 2009, 2007 - 2008, 2005 - 2006

Kuantum Mekaniği II, Doctorate, 2015 - 2016, 2014 - 2015, 2005 - 2006

Bilim Tarihi ve Felsefesi, Undergraduate, 2015 - 2016

Uzmanlık alan Dersi, Doctorate, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2011 - 2012, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006

MEKANİK I LAB., Undergraduate, 2015 - 2016, 2011 - 2012, 2010 - 2011, 2008 - 2009, 2007 - 2008, 2005 - 2006

ÖZEL KONULAR, Undergraduate, 2015 - 2016, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012, 2010 - 2011, 2009 - 2010, 2008 - 2009, 2007 - 2008, 2006 - 2007, 2005 - 2006

MEKANİK II, Undergraduate, 2015 - 2016, 2008 - 2009, 2007 - 2008, 2005 - 2006

MEKANİK I, Undergraduate, 2015 - 2016, 2008 - 2009, 2007 - 2008, 2005 - 2006

KUANTUM MEKANİĞİ II, Undergraduate, 2014 - 2015, 2013 - 2014, 2012 - 2013

KUANTUM MEKANİĞİ I, Undergraduate, 2014 - 2015, 2013 - 2014, 2012 - 2013, 2011 - 2012

Kuantum Mekaniği I, Doctorate, 2014 - 2015, 2013 - 2014, 2006 - 2007

KUANTUM FİZİĞİ LAB., Undergraduate, 2014 - 2015, 2013 - 2014, 2012 - 2013

Çok parçacık fiziği II, Doctorate, 2013 - 2014, 2011 - 2012, 2010 - 2011, 2009 - 2010

Çok Parçacık Fiziği I, Doctorate, 2012 - 2013, 2010 - 2011, 2009 - 2010, 2008 - 2009

İstatistik Mekanik II, Doctorate, 2012 - 2013  
İstatistik Mekanik I, Doctorate, 2012 - 2013, 2011 - 2012  
Matematiksel fizik II, Doctorate, 2011 - 2012, 2010 - 2011  
Matematiksel fizik I, Doctorate, 2010 - 2011, 2009 - 2010  
Optik Lab., Undergraduate, 2009 - 2010  
Elektrodinamik I, Doctorate, 2008 - 2009, 2007 - 2008, 2005 - 2006  
Elektronimik II, Doctorate, 2007 - 2008  
Elektrodinamik II, Doctorate, 2006 - 2007, 2005 - 2006  
Elaktrodinamik I, Doctorate, 2006 - 2007

## Advising Theses

KANDEMİR B. S., Üç boyutlu topolojik yalıtkanların yüzey durumları, Postgraduate, S.ALKAN(Student), 2021  
KANDEMİR B. S., İki boyutlu topolojik yalıtkanlarda elektron fonon etkileşmesi, Postgraduate, P.ORUÇ(Student), 2020  
KANDEMİR B. S., İki ve üç boyutta topolojik yalıtkanlar, Postgraduate, E.BAŞTİMUR(Student), 2019  
KANDEMİR B. S., Elektron-fonon etkileşmesi ve topolojik kusurların grafen'in fermi yüzeyi topolojisine etkileri, Doctorate, N.GÖKÇEK(Student), 2017  
KANDEMİR B. S., Tek duvarlı kiral karbon nanotüplerde fonon dağılımı bağıntıları, Doctorate, E.AYDIN(Student), 2016  
KANDEMİR B. S., Grafen tabanlı nano yapılarda topolojik etkiler, Doctorate, D.AKAY(Student), 2016  
KANDEMİR B. S., Grafen kuantum nokta ve karşıt noktaların elektronik özellikleri, Doctorate, G.ÖMER(Student), 2014  
KANDEMİR B. S., Grafende elektron-fonon etkileşmesi, Doctorate, A.MOĞULKOÇ(Student), 2013  
KANDEMİR B. S., Grafen şeritler, Postgraduate, F.IRMAK(Student), 2011  
KANDEMİR B. S., Grafen kuantum noktaları, Postgraduate, N.GÖKÇEK(Student), 2011  
KANDEMİR B. S., Grafen tabanlı nano yapılarda safsızlık etkileri, Postgraduate, D.BAYAT(Student), 2010  
KANDEMİR B. S., Karbon nanotüplerde elektron-fonon etkileşmesi, Doctorate, M.KESKİN(Student), 2009  
KANDEMİR B. S., Karbon nanotüplerin elektronik özellikleri, G.AHISKA(Student), 2009  
KANDEMİR B. S., Karbon nanotüplerin elektronik özellikleri, Postgraduate, G.AHISKA(Student), 2009  
KANDEMİR B. S., Grafende kütlelessiz dirac fermiyonları gazı, Postgraduate, A.MOĞULKOÇ(Student), 2008  
KANDEMİR B. S., q-Osilatörleri ve q-deforme fononlar, Postgraduate, E.AYDIN(Student), 2006  
KANDEMİR B. S., Kuantum noktalarında anharmonik elektron-fonon etkileşmeleri, Postgraduate, M.KESKİN(Student), 2004  
KANDEMİR B. S., Düşük boyutlu yapılarda polaron etkileri, Doctorate, A.ÇETİN(Student), 2003

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

- I. **Hairy BTZ black hole and its analogue model in graphene**  
KANDEMİR B. S.  
ANNALS OF PHYSICS, vol.413, 2020 (SCI-Expanded)
- II. **Substrate-limited helical edge states**  
KANDEMİR B. S., Atag S.  
PHYSICAL REVIEW B, vol.100, no.24, 2019 (SCI-Expanded)
- III. **Photoinduced Dynamical Band Gap in Graphene: The Effects of Electron-Phonon and Spin-Orbit Interaction**  
KANDEMİR B. S., AKAY D.  
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.255, no.10, 2018 (SCI-Expanded)
- IV. **Velocity renormalization in graphene: The role of trigonal warping and electron-phonon coupling effects**  
KANDEMİR B. S., Gokcek N.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS B, vol.31, no.30, 2017 (SCI-Expanded)

- V. **Quasinormal modes of BTZ black hole and Hawking-like radiation in graphene**  
KANDEMİR B. S., Ertem U.  
ANNALEN DER PHYSIK, vol.529, no.4, 2017 (SCI-Expanded)
- VI. **The effect of electron-A(1g) phonon coupling in spin-orbit-coupled graphene**  
KANDEMİR B. S., AKAY D.  
PHILOSOPHICAL MAGAZINE, vol.97, no.25, pp.2225-2235, 2017 (SCI-Expanded)
- VII. **Magnetotransport properties of corrugated stanene in the presence of electric modulation and tilted magnetic field**  
MOĞULKOÇ A., Modarresi M., KANDEMİR B. S., Roknabadi M. R.  
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.253, no.2, pp.300-307, 2016 (SCI-Expanded)
- VIII. **Chiral symmetry breaking by a magnetic field in graphene**  
KANDEMİR B. S., MOĞULKOÇ A.  
PHYSICS LETTERS A, vol.379, no.36, pp.2120-2124, 2015 (SCI-Expanded)
- IX. **Phonon Dispersions of Graphene from Unzipping Carbon Nanotubes**  
KANDEMİR B. S., Aydin E.  
JOURNAL OF LOW TEMPERATURE PHYSICS, vol.179, no.5-6, pp.320-342, 2015 (SCI-Expanded)
- X. **Tuning the pseudo-Zeeman splitting in graphene cones by magnetic field**  
KANDEMİR B. S., Akay D.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.384, pp.101-105, 2015 (SCI-Expanded)
- XI. **Spin-dependent polaron formation in pristine graphene**  
MOĞULKOÇ A., Modarresi M., KANDEMİR B. S.  
EUROPEAN PHYSICAL JOURNAL B, vol.88, no.2, 2015 (SCI-Expanded)
- XII. **Spin dependent transport through triangular graphene quantum dot in the presence of Rashba type spin-orbit coupling**  
Modarresi M., KANDEMİR B. S., Roknabadi M. R., Shahtahmasebi N.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.367, pp.81-85, 2014 (SCI-Expanded)
- XIII. **The role of electron-phonon interaction on the transport properties of graphene based nano-devices**  
MOĞULKOÇ A., Modarresi M., KANDEMİR B. S., Roknabadi M. R., Shahtahmasebi N., Behdani M.  
PHYSICA B-CONDENSED MATTER, vol.446, pp.85-91, 2014 (SCI-Expanded)
- XIV. **Zone-boundary phonon induced mini band gap formation in graphene**  
KANDEMİR B. S., MOĞULKOÇ A.  
SOLID STATE COMMUNICATIONS, vol.177, pp.80-83, 2014 (SCI-Expanded)
- XV. **Pseudo-Spin-Orbit Coupling in Graphene within Hydrogenic Impurity Context**  
KANDEMİR B. S.  
JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN, vol.82, no.9, 2013 (SCI-Expanded)
- XVI. **Variational calculations on the energy levels of graphene quantum antidots**  
KANDEMİR B. S., Omer G.  
EUROPEAN PHYSICAL JOURNAL B, vol.86, no.7, 2013 (SCI-Expanded)
- XVII. **Possible formation of chiral polarons in graphene**  
KANDEMİR B. S.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.25, no.2, 2013 (SCI-Expanded)
- XVIII. **Corrugated graphene: effects of in-plane and tilted out-of-plane magnetic fields**  
KANDEMİR B. S.  
EUROPEAN PHYSICAL JOURNAL B, vol.78, no.3, pp.393-397, 2010 (SCI-Expanded)
- XIX. **Variational approach for the effects of periodic modulations on the spectrum of massless Dirac fermion**  
KANDEMİR B. S., MOĞULKOÇ A.  
EUROPEAN PHYSICAL JOURNAL B, vol.74, no.3, pp.391-396, 2010 (SCI-Expanded)
- XX. **Boundaries of subcritical Coulomb impurity region in gapped graphene**  
KANDEMİR B. S., MOĞULKOÇ A.

- EUROPEAN PHYSICAL JOURNAL B, vol.74, no.4, pp.535-541, 2010 (SCI-Expanded)
- XXI. **Polaronic effects in one-dimensional quantum antidot arrays**  
KANDEMİR B. S.  
EUROPEAN PHYSICAL JOURNAL B, vol.66, no.1, pp.51-55, 2008 (SCI-Expanded)
- XXII. **Analytical approach to phonons and electron-phonon interactions in single-walled zigzag carbon nanotubes**  
KANDEMİR B. S., Keskin M.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.20, no.32, 2008 (SCI-Expanded)
- XXIII. **Analytical approach to phonons and electron-phonon interactions in single-walled armchair carbon nanotubes**  
KANDEMİR B. S., Altanhan T.  
PHYSICAL REVIEW B, vol.77, no.4, 2008 (SCI-Expanded)
- XXIV. **Two-particle Wigner functions in a one-dimensional Calogero-Sutherland potential**  
TEĞMEN A., Altanhan T., KANDEMİR B. S.  
EUROPEAN PHYSICAL JOURNAL D, vol.41, no.2, pp.397-402, 2007 (SCI-Expanded)
- XXV. **Anyon pairing via phonon-mediated interaction**  
KANDEMİR B. S.  
PHYSICAL REVIEW B, vol.74, no.7, 2006 (SCI-Expanded)
- XXVI. **Polaronic effects on the energy spectrum of two anyons in a parabolic quantum dot**  
KANDEMİR B. S.  
PHYSICAL REVIEW B, vol.73, no.11, 2006 (SCI-Expanded)
- XXVII. **Variational study of two-electron quantum dots**  
KANDEMİR B. S.  
PHYSICAL REVIEW B, vol.72, no.16, 2005 (SCI-Expanded)
- XXVIII. **Two interacting electrons in a uniform magnetic field and a parabolic potential: The general closed-form solution**  
KANDEMİR B. S.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.46, no.3, 2005 (SCI-Expanded)
- XXIX. **Impurity magnetopolaron in a parabolic quantum dot: the squeezed-state variational approach**  
KANDEMİR B. S., Cetin A.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.17, no.4, pp.667-677, 2005 (SCI-Expanded)
- XXX. **The stability of two-dimensional magnetobipolarons in parabolic quantum dots**  
KANDEMİR B. S.  
EUROPEAN PHYSICAL JOURNAL B, vol.37, no.4, pp.527-533, 2004 (SCI-Expanded)
- XXXI. **The ground- and first-excited states of magnetopolarons in two-dimensional quantum dots for all coupling strengths**  
KANDEMİR B. S., Altanhan T.  
EUROPEAN PHYSICAL JOURNAL B, vol.33, no.2, pp.227-232, 2003 (SCI-Expanded)
- XXXII. **The stability of magnetobipolarons in low-dimensional systems**  
KANDEMİR B. S., Altanhan T.  
EUROPEAN PHYSICAL JOURNAL B, vol.27, no.4, pp.517-526, 2002 (SCI-Expanded)
- XXXIII. **Ground- and first-excited state energies of impurity magnetopolaron in an anisotropic quantum dot**  
KANDEMİR B. S., Cetin A.  
PHYSICAL REVIEW B, vol.65, no.5, 2002 (SCI-Expanded)
- XXXIV. **Cyclotron mass of a polaron in a quantum dot**  
KANDEMİR B. S., Altanhan T.  
PHYSICS LETTERS A, vol.287, no.5-6, pp.403-408, 2001 (SCI-Expanded)
- XXXV. **Polaron effects on an anisotropic quantum dot in a magnetic field**  
KANDEMİR B. S., Altanhan T.  
PHYSICAL REVIEW B, vol.60, no.7, pp.4834-4849, 1999 (SCI-Expanded)
- XXXVI. **The first relaxed excited states of two-dimensional polarons in a magnetic field**

- KANDEMİR B. S., Altanhan T.  
NUOVO CIMENTO DELLA SOCIETA ITALIANA DI FISICA D-CONDENSED MATTER ATOMIC MOLECULAR AND  
CHEMICAL PHYSICS FLUIDS PLASMAS BIOPHYSICS, vol.20, no.10, pp.1557-1565, 1998 (SCI-Expanded)
- XXXVII. **Wigner functions of an electron moving in a one-dimensional periodic potential**  
KANDEMİR B. S.  
PHYSICS LETTERS A, vol.245, no.3-4, pp.209-219, 1998 (SCI-Expanded)
- XXXVIII. **Two-dimensional magnetopolarons with squeezed Landau states**  
KANDEMİR B. S., Altanhan T.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.9, no.2, pp.427-437, 1997 (SCI-Expanded)
- XXXIX. **SOME PROPERTIES OF LARGE POLARONS WITH SQUEEZED STATES**  
KANDEMİR B. S., ALTANHAN T.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.6, no.24, pp.4505-4514, 1994 (SCI-Expanded)
- XL. **A SQUEEZED STATE APPROACH FOR THE LARGE POLARONS**  
ALTANHAN T., KANDEMİR B. S.  
JOURNAL OF PHYSICS-CONDENSED MATTER, vol.5, no.36, pp.6729-6736, 1993 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Off plane Impurity Effects in Graphene Quantum Dots**  
KANDEMİR B. S., AKAY D.  
Cumhuriyet University Faculty of Science, vol.37, no.1, pp.20-29, 2016 (Peer-Reviewed Journal)
- II. **Massless Dirac Fermions in the Presence of Both Periodically Modulated Electric and Magnetic Fields**  
MOĞULKOÇ A., KANDEMİR B. S.  
Balkan PhysicsLetters, vol.16, no.161006, 2009 (Peer-Reviewed Journal)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Tuning the dynamical band gap in graphene by Haldane interaction**  
AKAY D., KANDEMİR B. S.  
international congress on semiconductor materials and devices (ICSMD-2017), 17 - 19 August 2017
- II. **Spin Yörünge Kuplajlı Grafende Elektron A1g Fönon Etkileşmesi**  
AKAY D., KANDEMİR B. S.  
yoğun madde fiziği ankara toplantısı, Ankara, Turkey, 19 December 2016
- III. **Magnetic Field Effects on Parabolic GrapheneQuantum Dots with Topological Defects**  
AKAY D., KANDEMİR B. S.  
18th International Conference on Engineering Materials and Applications, İstanbul, Turkey, 25 - 26 January 2016, vol.10, pp.54-58
- IV. **Graphene quantum dot with a hydrogenic impurity**  
Gokcek N., KANDEMİR B. S.  
International Physics Conference at the Anatolian Peak (IPCAP), Erzurum, Turkey, 25 - 27 February 2016, vol.707
- V. **Topological Defects in Graphene**  
AKAY D., KANDEMİR B. S.  
Graphene and related material 2014, İzmir, Turkey, 9 - 11 July 2014
- VI. **Magnetik Alan Altındaki Grafende Kritik altı Coulomb Safsızlığının Sınırları**  
MOĞULKOÇ A., KANDEMİR B. S.  
17. Yoğun Madde Fiziği Ankara Toplantısı, Turkey, 06 November 2010
- VII. **PHONONS AND ELECTRON-PHONON INTERACTIONS IN SINGLE-WALLED ACHIRAL CARBON NANOTUBES**

KANDEMİR B. S.

NATO Advanced Research Workshop on Recent Advances in Nonlinear Dynamics and Complex System Physics - from Natural to Social Sciences and Security, Tashkent, Uzbekistan, 12 - 17 October 2008, pp.177-181

VIII. **Massless Dirac Fermions in the Presence of Both Periodically Modulated Electric and Magnetic Fields**

KANDEMİR B. S., MOĞULKOÇ A.

Türk Fizik Derneği 25. Uluslararası Fizik Kongresi, 25 - 29 August 2008

## **Metrics**

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