

DATE OF BIRTH
December 07, 1971
PLACE OF BIRTH
Isparta
CITIZENSHIP
Turkish

Department of Physics, Balıkesir University
10145 Balıkesir, Turkey
Phone : +90-266-6121000/4411
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EDUCATION **Ph.D. in Condensed Matter Physics, December 2003**
Middle East Technical University, Ankara 06531, Turkey
Thesis title : “*Electronic Properties of Transition Metal Oxides*”
Supervisor : Prof. Dr. Ş. Ellialtıođlu
M.Sc. in Theoretical Solid State Physics, January 1998
Middle East Technical University, Ankara 06531, Turkey
Thesis title : “*Surface Charge-Bulk Charged Particle Dynamics*”
Supervisor : Prof. Dr. Metin Durgut
B.Sc. in Physics Education, June 1994
Bođaziđi University, İstanbul 34342, Turkey

EMPLOYMENT **Prof. at Balıkesir University**
January 2012 - present
Assoc. Prof. at Balıkesir University
October 2006 - January 2012
Assist. Prof. at Balıkesir University
April 2005 - October 2006
Research Assistant Dr. at Balıkesir University
March 2004 - April 2005
Research Assistant at Middle East Technical University
January 1999 - February 2004
Research Assistant at Balıkesir University
February 1997 - December 1998

RESEARCH **Current Interests**
Physics of Surfaces, Computational Many-Body Physics,
Nanoscale Physics & Materials Science

PUBLICATIONS *Total number of citations : 205*

“Electronic structures and optical spectra of thin anatase TiO₂ nanowires through hybrid density functional and quasiparticle calculations”

Hatice Ünal, Ođuz Gülseren, Şinasi Ellialtıođlu and Ersen Mete
Phys. Rev. B **89**, 205127 (2014), (arXiv:1403.5643).

“A study of the density functional methods on the photoabsorption of Bodipy dyes

Hatice Ünal, Deniz Gunceler and Ersen Mete
J Photochem Photobiol A : Chem **278**, 14 (2014), (arXiv:1309.1633).

“Electronic and optical properties of Cr and Cr-N doped anatase TiO₂ from screened Coulomb hybrid calculations”

Veysel Çelik and Ersen Mete
J. Phys.:Condens. Matter **25**, 365502 (2013), (arXiv:1303.4552).

“Range separated hybrid exchange-correlation functional analyses of anatase TiO₂ doped with W, N, S, W/N or W/S”

Veysel Çelik and Ersen Mete
Phys. Rev. B **86**, 205112 (2012), (arXiv:1203.6486).

“Influence of steps on the tilting and adsorption dynamics of ordered films on vicinal Ag(111) surfaces”

E. Mete, İ. Demirođlu, E. Albayrak, G. Bracco, Ş. Ellialtıođlu, M. F. Danman
J. Phys. Chem. C **116**, 19429 (2012), (arXiv:1203.5937).

- “DFT study of noble metal impurities on $TiO_2(110)$ ”**
E. Mete, O. Gülseren, Ş. Ellialtıođlu
Eur. Phys. J. B. **85**, 204 (2012), (arXiv:1109.3029).
- “Surface energy and excess charge in (1×2) -reconstructed rutile $TiO_2(110)$ from DFT+U calculations”**
H. Ünal, E. Mete, Ş. Ellialtıođlu
Phys. Rev. B **84**, 115417 (2011), (arXiv:1104.3072).
- “Interaction of BrPDI, BrGly, and BrAsp with the rutile $TiO_2(110)$ surface for photovoltaic and photocatalytic applications: a first-principles study”**,
D. Çakır, O. Gülseren, E. Mete, Ş. Ellialtıođlu
J. Phys. Chem. C **115**, 9220,9226 (2011).
- “Theoretical analysis of small platinum particles on rutile $TiO_2(110)$ ”**,
V. Çelik, H. Ünal, E. Mete, Ş. Ellialtıođlu
Phys. Rev. B **82**, 205113 (2010), (arXiv:1008.3631).
- “Pentacene multilayers on $Ag(111)$ ”**,
E. Mete, İ Demirođlu, M. Fatih Danıřman, Ş. Ellialtıođlu
J. Phys. Chem. C **114**, 2724-2729, (2010). (arXiv:1001.0106).
- “Dye adsorbates BrPDI, BrGly, and BrAsp on anatase $TiO_2(001)$ for dye-sensitized solar cell applications”**,
D. Çakır, O. Gülseren, E. Mete, Ş. Ellialtıođlu
Phys. Rev. B **80**, 035431 (2009).
- “Modification of $TiO_2(001)$ surface electronic structure by Au impurity”**,
E. Mete, O. Gülseren, Ş. Ellialtıođlu
Phys. Rev. B **80**, 035422 (2009), (arXiv:0907.0599).
- “Pt-incorporated anatase $TiO_2(001)$ surface for solar cell applications : First-principles density functional theory calculations.”**,
E. Mete, D. Üner, O. Gülseren, Ş. Ellialtıođlu,
Phys. Rev. B **79**, 125418 (2009), (arXiv:0903.1362).
- “Free standing double walled boron nanotubes”**,
A. Sebetçi, E. Mete and İ. Boustani
J. Phys. Chem. Solids **69**, (2008) 2004-2012.
- “Effect of hydrogenation on B/Si(001)-(1x2)”**,
M. Çakmak, E. Mete and Ş. Ellialtıođlu
Surf. Sci. **601**, (2007) 3711-3716.
- “Effect of molecular and electronic structure on the light harvesting properties of dye sensitizers”**,
E. Mete, D. Üner, M. Çakmak, O. Gülseren, Ş. Ellialtıođlu
J. Phys. Chem. C **111**, 7539-7547, (2007). (arXiv:0801.0316).
- “Atomic and electronic structures of Sr/Si(001)-(2x2)”**,
M. Çakmak, E. Mete and Ş. Ellialtıođlu
Surf. Sci. **600**, (2006) 3614-3618.
- “Cs adsorption on Si(001) surface : an ab initio study”**,
R. Shaltaf, E. Mete and Ş. Ellialtıođlu
Phys. Rev. B **72**, 205415 (2005), (cond-mat/0504088).
- “DFT study of Rb/Si(100)-2x1 System”**,
E. Mete, R. Shaltaf and Ş. Ellialtıođlu
Surf. Sci. **583**, (2005) 119, (cond-mat/0501349).
- “Electronic Structure of a Chain-like Compound : TlSe”**,
Ş. Ellialtıođlu, E. Mete, R. Shaltaf, K. Allakhverdiev,
F. Gashimzade, M. Nizametdinova, G. Orudzhev,
Phys. Rev. B **70**, 195118 (2004), (cond-mat/0406287).
- “Charged Particle-Image Interaction Near a Conducting Surface”**,
E. Mete, and M. Durgut,
Turk. J. Phys. **28**, 95-109 (2004), (cond-mat/0205425).

“Mg adsorption on Si(001) surface from first principles”,

R. Shaltaf, E. Mete, and Ş. Ellialtıođlu,

Phys. Rev. B **69**, 125417 (2004), (cond-mat/0308351).

“Ab initio study of the one-monolayer Sb/Ge(001) interface”

R. Shaltaf, M. Çakmak, E. Mete, G. P. Srivastava, and Ş. Ellialtıođlu,

Surf. Sci. **566-568** (2004) 956.

“Electronic and structural properties of a 4d-perovskite:

Cubic Phase of SrZrO₃”,

E. Mete, R. Shaltaf, and Ş. Ellialtıođlu,

Phys. Rev. B **68**, 035119 (2003), (cond-mat/0304703).

CONFERENCES

16th International Workshop on Computational Physics and Materials Science:

Total Energy and Force Methods, ICTP, Trieste, Italy, 10-12 January 2013,

“A comparative study of density functional methods for the optical properties of TiO₂ nanowires”

Hatice Ünal and Ersen Mete (poster presentation)

Turkish Physical Society, 29th International Physics Congress, Bodrum OASIS,

Bodrum, Turkey, 5-8 September 2012

“Understanding and designing highly active titania for photovoltaics and photocatalysis by number crunching”

Şinasi Ellialtıođlu, Ođuz Gülseren, Ersen Mete (oral presentation)

“Mutual passivation of photoexcited charge carrier recombination by W-N codoping in titania for solar cells”

Ersen Mete, Veysel Çelik (oral presentation)

Condensed Matter Physics İzmir Meeting, İzmir Institute of Technology,

İzmir, Turkey, 6 April 2012

“Perdelenmiş deđiş-tokuş hibrit fonksiyoneli çalışması ile güneş ışığı hasatlamada etkili bir katkılama olarak W/S(N)-TiO₂ anataz”

Veysel Çelik, Ersen Mete (oral presentation)

APS March Meeting 2012,

Boston, MA, USA, February 27-March 2 2012

“First Principles Optical Absorption Spectra of Organic Molecules

Adsorbed on Titania Nanoparticles”

Kopinjol Baishya, Serdar Öđüt, Ersen Mete, Ođuz Gülseren, and Şinasi Ellialtıođlu (oral)

18th Condensed Matter Physics Ankara Meeting, Middle East Technical University,

Ankara, Turkey, 25 November 2011

“TiO₂(110) yüzeyinde güneş pili uygulamaları için oluşturulmuş kusur durumlarının analizi”

V. Çelik, H. Ünal, E. Mete, Ş. Ellialtıođlu (oral presentation)

Gordon Research Conferences (GRC),

Time-Dependent Density Functional Theory (TDDFT) 2011, University of New England,

Biddeford, ME, USA, 14-19 August 2011

“Electronic structure and optical spectra of Bodipy dye sensitizers”

H. Ünal, E. Mete (poster presentation)

17th Condensed Matter Physics Ankara Meeting, Ankara University,

Ankara, Turkey, 5 November 2010

“Küçük Pt parçacıklarının rutil TiO₂(110) yüzeylerinde LSDA+U tasviri”

E. Mete, V. Çelik, H. Ünal, Ş. Ellialtıođlu (oral presentation)

“TiO₂(110) rekonstrüksiyon modellerinin DFT+U analizi”

H. Ünal, V. Çelik, E. Mete, Ş. Ellialtıođlu (poster presentation)

ECOSS-27, Gröningen, Holland, 30 August-4 September 2010

(27th European Conference On Surface Science)

“Structural and Electronic Investigation of Pentacene Thin Films on Flat and Stepped Ag(111) Surfaces”

M. F. Danışman, E. Mete, B. Özkan, İ. Demirođlu, Ş. Ellialtıođlu (oral presentation)

NanoTR-VI, İzmir Institute of Technology, İzmir, Turkey, 15-18 June 2010

(Nanoscience and Nanotechnology 2010)

“Structural and Electronic Investigation of Pentacene Thin Films on

Flat and Stepped Ag(111) Surfaces”

M. F. Daniřman, E. Mete, B. Özkan, İ. Demirođlu, ř. Ellialtıođlu (oral presentation)

16th Condensed Matter Physics Ankara Meeting, Gazi University, Ankara, Turkey, 6 November 2009

“Ag(111) yüzeyinde düzenli pentasen tabakaları”

E. Mete, İ. Demirođlu, M. F. Daniřman, ř. Ellialtıođlu (oral presentation)

ECASIA’09, Antalya, Turkey, 18-23 October 2009

(13th European Conference on Applications of Surface and Interface Analysis)

“A Computational Study of Pentacene Thin Films on Ag(111) Surface”

E. Mete, İ. Demirođlu, M. Fatih Daniřman, ř. Ellialtıođlu (oral presentation)

TFD26, Bodrum, Turkey, 24-27 September 2009

(26th International Physics Congress)

“Pentacene multilayers on Ag(111) surface”

E. Mete, İ. Demirođlu, M. Fatih Daniřman, ř. Ellialtıođlu (oral presentation)

ECOSS-26, Parma, Italy, 30 August-4 September 2009

(26th European Conference On Surface Science)

“Perylene based dye adsorbates on TiO₂ for solar cell applications”

E. Mete, D. Çakır, O. Gülseren, ř. Ellialtıođlu (oral presentation)

2009 APS March Meeting,

Pittsburgh, Pennsylvania, USA, 17 March 2009

“Structural investigation of pentacene on Ag(111) by density functional theory”

M. F. Daniřman, E. Mete, ř. Ellialtıođlu (oral presentation)

15th Condensed Matter Physics Ankara Meeting, Bilkent University, Ankara, Turkey, 7 November 2008

“SO₂ Adsorption on Rutile TiO₂ (110) Surface”

M. Mesta, E. Mete, ř. Ellialtıođlu (poster presentation)

“Altın öbeklerinin anataz TiO₂ (100), (001), ve (101) yüzeylerine bağlanması”

K. Başak Vural, E. Mete, ř. Ellialtıođlu (poster presentation)

Renewable Energies Symposium, Ege University, İzmir, Turkey, 9-11 October 2008

“Activation of titania by precious metal incorporation for solar cell applications”

E. Mete, O. Gülseren, ř. Ellialtıođlu (oral presentation)

ECOSS-25, Liverpool, England, 21 July-1 August 2008

(25th European Conference On Surface Science)

“Electronic structure of Au-implanted TiO₂ surfaces”

E. Mete, M. Çakmak, O. Gülseren, ř. Ellialtıođlu (poster presentation)

“Adsorption of BrPDI, BrGly, and BrAsp on anatase TiO₂ (001) surface for dye-sensitized solar cell applications”

D. Çakır, O. Gülseren, E. Mete, ř. Ellialtıođlu (poster presentation)

NanoTR-IV, İstanbul Technical University, İstanbul, Turkey, 9-13 June 2008

(Nanoscience and Nanotechnology 2008)

“Activation of rutile TiO₂-(110) by Pt and Au implantation for solar cell applications”

E. Mete, O. Gülseren, M. Çakmak, ř. Ellialtıođlu (oral presentation)

13th International Workshop on Computational Physics and Materials Science:, Total Energy and Force Methods, ICTP, Trieste, Italy, 11-13 January 2007,

“Effect of molecular structure on the visible light activity of dye sensitizers”

E. Mete (poster presentation)

13th Condensed Matter Physics Ankara Meeting, Middle East Technical University, Ankara, Turkey, 3 November 2006

“Pt_n (n=1-4) topaklarının stokiometrik ve indirgenmiş rutil TiO₂(110) yüzeylerinde büyüme eğilimi”,

E. Mete, ř. Ellialtıođlu (oral presentation)

ECOSS-24, Paris, France, 3-9 September 2006

(24th European Conference On Surface Science)

“Interactions of Pt in TiO₂ surfaces”

E. Mete, D. Üner, O. Gülseren, Ş. Ellialtıođlu (poster presentation)
“Adsorption and photocatalytic activity of perylene diimide based
light harvesting molecules over Pt surfaces”

O. Gülseren, E. Mete, D. Üner, Ş. Ellialtıođlu (poster presentation)
“Effect of hydrogenation on B/Si(001)-(1×2)”

M. Çakmak, E. Mete, Ş. Ellialtıođlu (poster presentation)

**12th Condensed Matter Physics Ankara Meeting, Ankara University,
Ankara, Turkey, 18 November 2005**

“TiSe ve TlInSe₂ için elektronik yapının YFT hesabı ve SBM parametrizasyonu”,
E. Mete, Ö. Yıldırım, Ş. Ellialtıođlu (oral presentation)

ECOSS-23, Berlin, Germany, 4-9 September 2005

(23rd European Conference On Surface Science)

“Tailoring the Structures of the Organic Dyes for Enhanced Electron
Transfer Processes during the Photoreduction of CO₂ on a TiO₂ Surface”,

F. Yükrük, Ö. Özcan, E. Mete, E. U. Akkaya, D. Üner,

M. Çakmak, O. Gülseren, Ş. Ellialtıođlu (poster presentation)

“Atomic and electronic structures of Sr/Si(001)-(2×2)”,

M. Çakmak, E. Mete and Ş. Ellialtıođlu (poster presentation)

NanoTR-I, Bilkent University, Ankara, Turkey, 25-27 May 2005

(Nanoscience and Nanotechnology 2005)

“Towards theory assisted design of biologically inspired catalysts”,

Ş. Ellialtıođlu, D. Üner, E. Akkaya, O. Gülseren, M. Çakmak,

F. Yükrük, E. Mete, and A. Yılmaz (oral presentation)

**11th Condensed Matter Physics Ankara Meeting, Gazi University,
Ankara, Turkey, 3 December 2004**

“Rb/Si(001)-2x1 sisteminin yoğunluk fonksiyoneli çalışması”

E. Mete (oral presentation)

**10th Condensed Matter Physics Ankara Meeting, Hacettepe University,
Ankara, Turkey, 14 November 2003**

“Bir 4d perovskitin elektronik ve yapısal özellikleri :

SrZrO₃ ’in kübik fazı”,

E. Mete, R. Shaltaf and Ş. Ellialtıođlu (oral presentation)

“A study of Mg adsorption on Si(001) surface from first principles”,

R. Shaltaf, E. Mete, and Ş. Ellialtıođlu (oral presentation)

ECOSS-22, Praha, Czech Republic, 7-12 September 2003

(22nd European Conference On Surface Science)

“Ab initio study of the one-monolayer Sb/Ge(001) interface”,

R. Shaltaf, M. Çakmak, E. Mete, G.P. Srivastava, Ş. Ellialtıođlu (poster presentation)

ECOSS-20, Krakow, Poland, 7-11 September 2001

(20th European Conference On Surface Science)

“Oxygen vacancies and chemisorption on perovskite surfaces”,

E. Mete and Ş. Ellialtıođlu (poster presentation)

**2nd National Symposium on High Temperature Superconductors,
Malatya, Turkey 2001**

“Optical and electronic structure of perovskites which constitute
ceramic superconductors”

E. Mete and Ş. Ellialtıođlu (invited talk)

TALKS

“DFT study of Rb/Si(001)-2×1 System”,

Institute of Physics and Astronomy, University of Aarhus,

DK-8000 Aarhus C, Denmark, 7 December 2004

invited by Prof. Bjoerk Hammer (hammer@phys.au.dk)

SCHOOLS & WORKSHOPS

Basic Techniques and Tools for Development and Maintenance of Atomic-Scale Software

ZCAM (Zaragoza Scientific Center for Advanced Modelling),

Zaragoza, Spain, 21-25 June 2010.

IARS Frontiers Workshop on DFT and its applications in Nanosciences

Institute of Theoretical and Applied Physics (ITAP), Turunç, Turkey, 19-29 October 2009.
(as an organizer)

Summer School on Modeling Nanostructures using Density Functional Theory, NanoDFT'09
İzmir Institute of Technology, İzmir, Turkey, 10-21 August 2009. (as a lecturer)

Electronic Excitations and Spectroscopies : Theory and Codes
CECAM (Centre Européen de Calcul Atomique et Moléculaire),
Lyon, France, 11-15 December 2006.

Quantum Computation at the Atomic Scale
Boğaziçi University, İstanbul, Turkey, 1-11 June 2003.

GRANTS

TÜBİTAK (The Scientific and Technical Research Council of Turkey)
*“Excited state properties of surface impurities designed from first principles
for solar cell applications”*
Grant No. TBAG (110T394)

TÜBİTAK (The Scientific and Technical Research Council of Turkey)
“Structural and electronic properties of titania supported nanostructures and surfaces”
Grant No. TBAG (107T560)

TÜBİTAK (The Scientific and Technical Research Council of Turkey)
“Structural and electronic properties of small transition metal clusters”
Grant No. TBAG-HD/38 (105T051)

TÜBİTAK (The Scientific and Technical Research Council of Turkey)
“Structural and electronic properties of low dimensional systems”
Grant No. TBAG-2036 (101T058)

COMPUTER EXPERTISE

Linux administration and parallel computation at METU and at Balıkesir University.
Expert in DFT codes : ABINIT, VASP, PWSCF, NWCHEM.
Programming experience in C++, Fortran 90, Pascal.