

# ERSEN METE

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

Department of Physics, Balıkesir University  
Çağış Campus 10145 Balıkesir, Turkey  
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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**  
Boğaziçi University, İstanbul 34342, Turkey

**EMPLOYMENT**      **Assoc. Prof. at Balıkesir University**  
October 2006 - present  
**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**      “*Small platinum particles on rutile TiO<sub>2</sub>(110)*”,  
E. Mete, Ş. Ellialtıođlu  
*preprint.*

“*Pentacene multilayers on Ag(111)*”,  
E. Mete, İ Demirođlu, M. Fatih Danışman, Ş. Ellialtıođlu  
*J. Phys. Chem C* **2010**, *114*, 2724-2729, (*arXiv:1001.0106*).

“*Dye adsorbates BrPDI, BrGly, and BrAsp on anatase TiO<sub>2</sub>(001)  
for dye-sensitized solar cell applications*”,  
D. Çakır, O. Gülseren, E. Mete, Ş. Ellialtıođlu  
*Phys. Rev. B* *80*, 035431 (2009).

“*Modification of TiO<sub>2</sub>(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<sub>2</sub>(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*).Times cited : 2

- “Free standing double walled boron nanotubes”**,  
A. Sebetçi, E. Mete and İ. Boustani  
*J. Phys. Chem. Solids* 69, (2008) 2004-2012. Times cited : 1
- “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* 2007, 111, 7539-7547, (arXiv:0801.0316). Times cited : 5
- “Atomic and electronic structures of Sr/Si(001)-(2x2)”**,  
M. Çakmak, E. Mete and Ş. Ellialtıođlu  
*Surf. Sci.* 600, (2006) 3614-3618. Times cited : 2
- “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). Times cited : 4
- “DFT study of Rb/Si(100)-2x1 System”**,  
E. Mete, R. Shaltaf and Ş. Ellialtıođlu  
*Surf. Sci.* 583, (2005) 119, (cond-mat/0501349). Times cited : 2
- “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). Times cited : 9
- “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). Times cited : 4
- “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 SrZrO<sub>3</sub>”**,  
E. Mete, R. Shaltaf, and Ş. Ellialtıođlu,  
*Phys. Rev. B* 68, 035119 (2003), (cond-mat/0304703). Times cited : 31

## CONFERENCES

- 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, Ş. 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, Ş. Ellialtıođlu (oral presentation)
- ECOSS-26, Parma, Italy, 30 August-4 September 2009**  
(26th European Conference On Surface Science)  
“Perylene based dye adsorbates on TiO<sub>2</sub> for solar cell applications”  
E. Mete, D. Çakır, O. Gülseren, Ş. Ellialtıođlu (oral presentation)
- 2009 APS March Meeting,**

**Pittsburgh, Pennsylvania, USA, 17 March 2009**

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

F. Danişman, E. Mete, Ş. Ellialtıođlu (oral presentation)

**15th Condensed Matter Physics Ankara Meeting, Bilkent University,**

**Ankara, Turkey, 7 November 2008**

*“SO<sub>2</sub> Adsorption on Rutile TiO<sub>2</sub> (110) Surface”*

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

*“Altın öbeklerinin anataz TiO<sub>2</sub> (100), (001), ve (101) yüzeylerine bağlanması”*

K. Başak Vural, E. Mete, Ş. 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, Ş. Ellialtıođlu (oral presentation)

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

(25th European Conference On Surface Science)

*“Electronic structure of Au-implanted TiO<sub>2</sub> surfaces”*

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

*“Adsorption of BrPDI, BrGly, and BrAsp on anatase TiO<sub>2</sub> (001) surface for dye-sensitized solar cell applications”*

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

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

(Nanoscience and Nanotechnology 2008)

*“Activation of rutile TiO<sub>2</sub>-(110) by Pt and Au implantation for solar cell applications”*

E. Mete, O. Gülseren, M. Çakmak, Ş. 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<sub>n</sub> (n=1-4) topaklarının stokiometrik ve indirgenmiş rutil TiO<sub>2</sub>-(110) yüzeylerinde büyüme eğilimi”,*

E. Mete, Ş. Ellialtıođlu (oral presentation)

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

(24th European Conference On Surface Science)

*“Interactions of Pt in TiO<sub>2</sub> 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**

*“TlSe ve TlInSe<sub>2</sub> 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 CO<sub>2</sub> on a TiO<sub>2</sub> 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 :*

*SrZrO<sub>3</sub>’ın 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 (oral presentation)

#### TALKS

*“DFT study of Rb/Si(001)-2x1 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](mailto:hammer@phys.au.dk))

#### SCHOOLS & WORKSHOPS

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)

*“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.