

## Assist. Prof. Dr. ERSIN EMRE OREN

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### EDUCATION

**Ph. D.**, Metallurgical & Materials Engineering Department, Middle East Technical University, Ankara, TURKEY, Graduated January 2003, (*Magna Cum Laude*)

Mentor: Prof. Dr. Tarık Ömer Oğurtanı.

**M. Sc.**, Metallurgical & Materials Engineering Department, Middle East Technical University, Ankara, TURKEY, Graduated September 2000, (*Cum Laude*)

Mentor: Prof. Dr. Tarık Ömer Oğurtanı.

**B. Sc. Major Program**, Metallurgical & Materials Engineering Department, Middle East Technical University, Ankara, TURKEY, Graduated June 1997.

**B. Sc. Minor Program**, Solid State Physics in the Department of Physics, Middle East Technical University, Ankara, TURKEY, Graduated June 1997.

### ADMINISTRATIVE APPOINTMENTS

2012 – Present **Associate Chair** Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, TURKEY

### PROFESSIONAL EXPERIENCE

2012 – Present **Adjunct Assistant Professor** Department of Materials Science and Nanotechnology Engineering, TOBB University of Economics and Technology, Ankara, TURKEY

2011 – Present **Assistant Professor** Department of Biomedical Engineering, TOBB University of Economics and Technology, Ankara, TURKEY

2011 – 2011 **Visiting Professor** Department of Electrical Engineering, University of Washington, Seattle, WA, USA

2008 – 2010 **Acting Instructor** Genetically Engineered Materials Science and Engineering Center, GEMSEC, NSF/UW-MRSEC Materials Science and Engineering Department, University of Washington, Seattle, WA, USA

2006 – 2007 **Postdoctoral Fellow** Computational Biology Group, Department of Microbiology, and Genetically Engineered Materials Science and Engineering Center, GEMSEC, NSF/UW-MRSEC Materials Science and Engineering Department, University of Washington, Seattle, WA, USA

2003 – 2005 **Postdoctoral Fellow** Materials Science and Engineering Department, University of Washington, Seattle, WA, USA

1997 – 2003 **Research Assistant** Metallurgical and Materials Engineering Department, Middle East Technical University (METU), Ankara, TURKEY

2001 – 2001 **Visiting Scientist** Max-Planck-Institut für Metallforschung, Seestrasse 92, D-70174, Stuttgart, GERMANY

1996 – 1997 **Student Assistant** Metallurgical & Materials Engineering Department, Middle East Technical University, Ankara, TURKEY

## AWARDS, FELLOWSHIPS & GRANTS

- **TÜBA GEBİP, Outstanding Young Scientist Award, 2012**, the Turkish Academy of Sciences.
- **Research Incentive Award 2012**, METU Prof. Dr. Mustafa N. Parlar Education & Research Foundation.
- **Postdoctoral Fellowship**, National Science Foundation (NSF) MRSEC Program through the University of Washington Genetically Engineered Materials Science and Engineering Center (DMR 0520567).
- **Postdoctoral Fellowship**, Army Research Office (ARO) DURINT program through the University of Washington (DAAD19-01-1-04999).
- **TCBG Computational Biophysics Workshop** (20/107 applicants selected). An NIH-sponsored Workshop on Theoretical and Computational Biophysics, University of Illinois at Urbana Champaign, Chicago, IL, USA, June 9-13, 2005.
- **TUBITAK-NATO-A2 Research Grant** (to visit Max-Planck-Institut für Metallforschung, Stuttgart, GERMANY, 2001).
- **Fulbright Conference Travel Grant** (MRS 2001 Fall Meeting, Boston, MA, USA).
- **The Best Thesis Award 2000**, Prof. Dr. Mustafa N. Parlar Education & Research Foundation, METU, Ankara, TURKEY.

## RESEARCH FUNDING

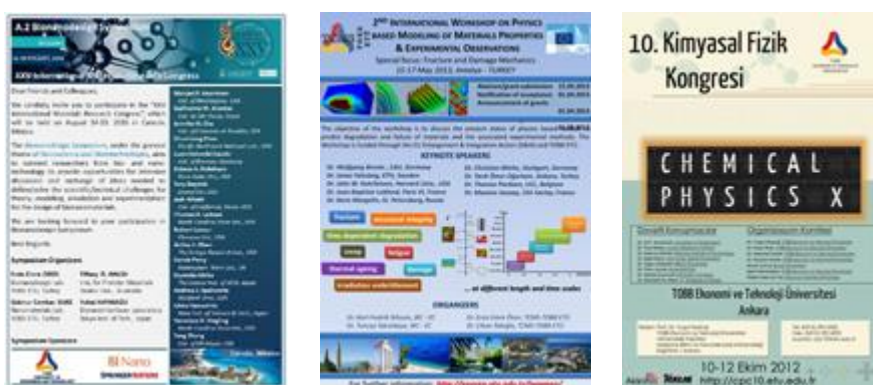
- **PI**, 05.01.2016-Ongoing (\$ 100,000)  
TUBITAK 1001 Research Projects No. 315M222: Quantum dot formation models in crystalline solids under the simultaneous action of electric and strain fields.
- **Co-PI**, 01.01.2017-Ongoing (\$ 100,000)  
TUBITAK 1005 National New Ideas and Products R&D Funding Program: Development of graphene-copper laminate heat spreaders. (PI: Gökür Cambaz Büke).
- **Co-PI**, 06.01.2014-Ongoing (\$ 120,000)  
TUBITAK 1001 Research Projects No. 213M481: Synthesis of vertically aligned carbon nanostructures for potential use in Mikro/nano electronics applications. (PI: Gökür Cambaz Büke).
- **PI**, 11.01.2011-01.02.2014 (\$ 100,000)  
TUBITAK 1001 Research Projects No. 111T343: Computer simulation of film/substrate interface (in)stabilities and development of quantum dots from heteroepitaxially strained anisotropic thin films on rigid substrates.
- **Co-PI**, 09.01.2007-09.01.2009 (\$ 100,000)  
TUBITAK 1001 Research Projects No. 104M399: Computer simulation of electromigration-induced failure of metallic interconnects: special reference to the effects of diffusion anisotropy and thermal stresses on the evolution of surface morphology and cathode failure (PI: Tarik Omer Ogurtani).
- **Co-PI**, 07.01.2005-07.01.2007 (\$ 110,000)  
TUBITAK 1001 Research Projects No. 107M011: Computer simulations of electromigration driven intragranular macro-voids and grain boundary grooves under the hydrostatic and biaxial stress systems in metallic thin film interconnects (PI: Tarik Omer Ogurtani).

## PATENT

1. Method and system for designing polypeptides and polypeptide-like polymers with specific chemical and physical characteristics. US Patent Pending: 20100070200, 2008.

## CONFERENCES/WORKSHOPS ORGANIZED

- XXV International Materials Research Congress: Bionanodesign ([IMRC 2016](#)), August 14-19, 2016, Cancun/Mexico.
- 2<sup>nd</sup> International Workshop on Physics Based Modeling of Material Properties & Experimental Observations ([IWPMEO II](#)), May 15-17, 2013, Antalya/Turkey.
- 10<sup>th</sup> Chemical Physics Congress ([CPC X](#)), October 10-12, 2012, Ankara/Turkey.
- [Molecular Biomimetics & Bionanotechnology-IV](#): Protein-based Materials & Systems for Technology & Medicine, September 24-28, 2009, San Juan Islands, WA, USA.
- [Molecular Biomimetics & Bionanotechnology-III](#): Protein-based Materials & Systems for Technology & Medicine, September 10-12, San Juan Islands, WA, USA.
- [Molecular Biomimetics & Bionanotechnology-II](#): Protein-based Materials & Systems for Technology & Medicine, September 4-7, 2007, San Juan Islands, WA, USA.
- [Molecular Biomimetics-I](#): Protein-based Materials for Technology & Medicine, September 6-8, 2006, San Juan Islands, WA, USA.

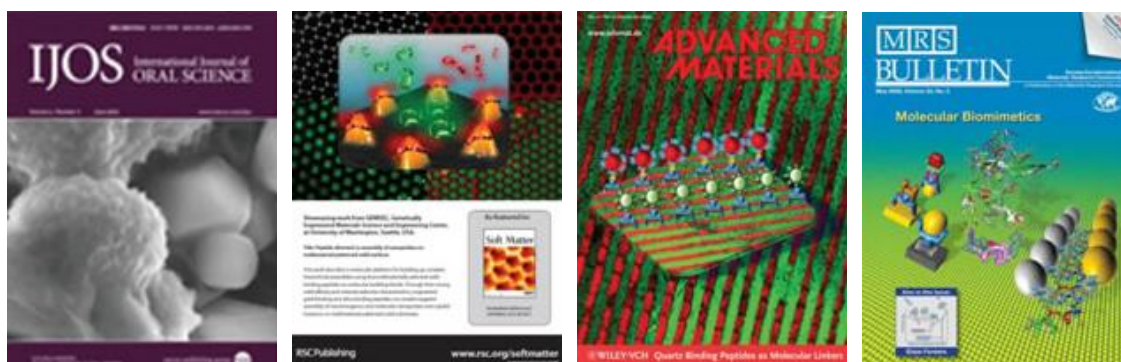


## SCIENTIFIC PUBLICATIONS

As of April 2017: 49 listed: 35 articles, 7 proceedings, 5 meeting abstracts & 2 theses;

[Science Citation Index](#): Total # of citations: 1057, *h-index*: 18

[Google Scholars](#): Total # of citations: 1508, *h-index*: 20 *h-10 index*: 22



## Journal Articles

1. E. Kayali, E. Mercan, E.E. Oren & G.C. Buke "Few layer graphene synthesis via SiC decomposition at low temperature and low vacuum" *Journal of Physics D: Applied Physics*, **49**, 165301 (2016). [doi:10.1088/0022-3727/49/16/165301](https://doi.org/10.1088/0022-3727/49/16/165301)
2. H. Yazici, M.B. O'Neill, T. Kacar, B.R. Wilson, **E.E. Oren**, M. Sarikaya & C. Tamerler "Engineered chimeric peptides as antimicrobial surface coating agents towards infection-free implants" *ACS Applied Materials & Interfaces*, **8**, 5070-5081 (2016). [doi:10.1021/acsami.5b03697](https://doi.org/10.1021/acsami.5b03697)

3. H. Erdogan, E. Babur, M. Yilmaz, E. Candas, M. Goerdesel, Y. Dede, **E.E. Oren**, G. Demirel, M. Ozturk & G. Demirel “Morphological versatility in self-assembly of Val-Ala and Ala-Val dipeptides” *Langmuir*, **31**, 7337-7345 (2015). [doi:10.1021/acs.langmuir.5b01406](https://doi.org/10.1021/acs.langmuir.5b01406)
4. T.O. Ogurtani, A. Celik & **E.E. Oren**. “Stranski-Krastanow islanding initiated on the stochastic rough surfaces of the epitaxially strained thin films” *Journal of Applied Physics*, **115**, 224307 (2014). [doi:10.1063/1.4883295](https://doi.org/10.1063/1.4883295)
5. H. Yazici, H. Fong, B. Wilson, **E.E. Oren**, F.A. Amos, H. Zhang, J.S. Evans, M.L. Snead, M. Sarikaya & C. Tamerler. “Biological response on a titanium implant-grade surface functionalized with modular peptides” *Acta Biomaterialia*, **9**, 5341-5352 (2013). [doi:10.1016/j.actbio.2012.11.004](https://doi.org/10.1016/j.actbio.2012.11.004)
6. M. Gungormus, **E.E. Oren**, J.A. Horst, H. Fong, M. Hnilova, M.J. Somerman, M.L. Snead, R. Samudrala, C. Tamerler & M. Sarikaya. “Cementomimetics-constructing a cementum-like biomineralized microlayer via amelogenin-derived peptides” *International Journal of Oral Science*, **4**, 69-77 (2012). (Cover) [doi:10.1038/ijos.2012.40](https://doi.org/10.1038/ijos.2012.40)
7. S. Cetinel, S. Dincer, A. Cebeci, **E.E. Oren**, J.D. Whitaker, D.T. Schwartz, N.G. Karaguler, M. Sarikaya & C. Tamerler. “Peptides to bridge biological-platinum materials interface” *Bioinspired, Biomimetic and Nanobiomaterials*, **1**, 143-153 (2012). [doi:10.1680/bbn.12.00008](https://doi.org/10.1680/bbn.12.00008)
8. O. Akyildiz, **E.E. Oren** & T.O. Ogurtani. “Grain boundary grooving in bi-crystal thin films induced by surface drift-diffusion driven by capillary forces and applied uniaxial-tensile stresses” *Philosophical Magazine*, **92**, 804-829 (2012). [doi:10.1080/14786435.2011.634850](https://doi.org/10.1080/14786435.2011.634850)
9. M. Hnilova, C.R. So, **E.E. Oren**, B.R. Wilson, T. Kacar, C. Tamerler & M. Sarikaya. “Peptide-directed co-assembly of nanopores on multilateral patterned solid surfaces” *Soft Matter*, **8**, 4327-4334 (2012). (Inside Cover) [doi:10.1039/C2SM06426J](https://doi.org/10.1039/C2SM06426J)
10. M. Hnilova, D. Khatayevich, A. Carlson, **E.E. Oren**, C. Gresswell, S. Zheng, F. Ohuchi, M. Sarikaya & C. Tamerler. “Single-Step Fabrication of Patterned Gold Film Array by an Engineered Multi-Functional Peptide” *Journal of Colloid and Interface Science*, **365**, 97-102 (2012). [doi:10.1016/j.jcis.2011.09.006](https://doi.org/10.1016/j.jcis.2011.09.006)
11. O. Akyildiz, **E.E. Oren** & T.O. Ogurtani. “Mesoscopic nonequilibrium thermodynamics treatment of the grain boundary thermal grooving induced by the anisotropic surface drift diffusion” *Journal of Materials Science*, **46**, 6054-6064 (2011). [doi:10.1007/s10853-011-5567-8](https://doi.org/10.1007/s10853-011-5567-8)
12. **E.E. Oren**, R. Notman, I.W. Kim, J.S. Evans, T.R. Walsh, R. Samudrala, C. Tamerler & M. Sarikaya. “Probing the molecular mechanisms of quartz-binding peptides” *Langmuir*, **26**, 11003-11009 (2010). [doi:10.1021/la100049s](https://doi.org/10.1021/la100049s)
13. T.O. Ogurtani, A. Celik & **E.E. Oren**. “Generic role of the anisotropic surface free energy on the morphological evolution in a strained-heteroepitaxial solid droplet on rigid substrates” *Journal of Applied Physics*, **108**, 103516 (2010). [doi:10.1063/1.3512970](https://doi.org/10.1063/1.3512970)
14. R. Notman, **E.E. Oren**, C. Tamerler, M. Sarikaya, R. Samudrala & T. R. Walsh. “Solution studies of strong and weak quartz-binding peptides using replica exchange molecular dynamics” *Biomacromolecules*, **11**, 3266-3274 (2010). [doi:10.1021/bm100646z](https://doi.org/10.1021/bm100646z)
15. T.O. Ogurtani, A. Celik & **E.E. Oren**. “Morphological evolution in a strained-heteroepitaxial solid droplet on a rigid substrate: Dynamical simulations” *Journal of Applied Physics*, **108**, 063527 (2010). [doi:10.1063/1.3483937](https://doi.org/10.1063/1.3483937)  
Editorially chosen to appear in the [Virtual Journal of Nanoscale Science & Technology September 27, 2010](https://doi.org/10.1002/vlsi.2010).
16. A. Dezieck, O. Acton, K. Leong, **E.E. Oren**, H. Ma, C. Tamerler, M. Sarikaya & A.K.-Y. Jen. “Threshold voltage control in organic thin film transistors with dielectric layer modified by a genetically engineered polypeptide” *Applied Physics Letters*, **97**, 013307 (2010). [doi:10.1063/1.3459978](https://doi.org/10.1063/1.3459978)
17. C. Tamerler, D. Khatayevich, M. Gungormus, T. Kacar, **E.E. Oren**, M. Hnilova & M. Sarikaya. “Molecular biomimetics: Gepi-based biological routes to technology” *Biopolymers: Peptide Science*, **94**, 78-94 (2010). [doi:10.1002/bip.21368](https://doi.org/10.1002/bip.21368)

18. C.R. So, J.L. Kulp, **E.E. Oren**, H. Zareie, C. Tamerler, J.S. Evans & M. Sarikaya. "Molecular recognition and supramolecular self-assembly of a genetically engineered gold binding peptide on Au{111}" *ACS Nano*, **3**, 1525-1531 (2009). [doi:10.1021/nn900171s](https://doi.org/10.1021/nn900171s)
19. T. Kacar, J. Ray, M. Gungormus, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Quartz binding peptides used as linkers for making multi-(bio)functional micro-patterned systems" *Advanced Materials*, **21**, 295-299 (2009). (Back Cover) [doi:10.1002/adma.200801877](https://doi.org/10.1002/adma.200801877)
20. M. Hnilova, **E.E. Oren**, U.O.S. Seker, B. Wilson, S. Collino, J.S. Evans, C. Tamerler & M. Sarikaya. "Effect of molecular conformations on adsorption behavior of gold binding peptides" *Langmuir*, **24**, 12440-12445 (2008). [doi:10.1021/la801468c](https://doi.org/10.1021/la801468c)
21. T.O. Ogurtani, O. Akyildiz & **E.E. Oren**. "Morphological evolution of tilted grain-boundary thermal grooving by surface diffusion in bicrystal thin solid films having strong anisotropic surface Gibbs free energy" *Journal of Applied Physics*, **104**, 013518 (2008). [doi:10.1063/1.2952520](https://doi.org/10.1063/1.2952520)
22. J.S. Evans, R. Samudrala, T. Walsh, **E.E. Oren** & C. Tamerler. "The molecular design of inorganic-binding polypeptides" *MRS Bulletin*, **33**, (5) 514-518 (2008). (Cover designed by EEO) [doi:10.1557/mrs2008.103](https://doi.org/10.1557/mrs2008.103)
23. **E.E. Oren**, C. Tamerler, D. Sahin, M. Hnilova, U.O.S. Seker, M. Sarikaya & R. Samudrala. "A novel knowledge-based approach to design inorganic-binding peptides" *Bioinformatics*, **23**, (21), 2816-2822 (2007). [doi:10.1093/bioinformatics/btm436](https://doi.org/10.1093/bioinformatics/btm436)
24. T.O. Ogurtani, A. Celik & **E.E. Oren**. "Morphological evolution of edge-hillocks on single crystal films having anisotropic drift-diffusion under the capillary and electromigration forces" *Thin Solid Films*, **515** (5), 2974-2983 (2007). [doi:10.1016/j.tsf.2006.08.020](https://doi.org/10.1016/j.tsf.2006.08.020)
25. U.O.S. Seker, B. Wilson, S. Dincer, I.W. Kim, **E.E. Oren**, J.S. Evans, C. Tamerler, & M. Sarikaya. "Adsorption behavior of linear and cyclic genetically engineered platinum binding peptides" *Langmuir*, **23**, 7895-7900 (2007). [doi:10.1021/la700446g](https://doi.org/10.1021/la700446g)
26. C. Tamerler, M. Duman, **E.E. Oren**, M. Gungormus, X. Xiong, B.A. Parviz & M. Sarikaya. "Materials specificity and directed assembly of a gold binding peptide" *Small*, **2** (11), 1372-1378 (2006). [doi:10.1002/sml.200600070](https://doi.org/10.1002/sml.200600070)
27. C. Tamerler, **E.E. Oren**, M. Duman, E. Venkatasubramanian & M. Sarikaya. "Adsorption kinetics of an engineered gold binding peptide by surface plasmon resonance spectroscopy and a quartz crystal microbalance" *Langmuir*, **22**, 7712-7718 (2006). [doi:10.1021/la0606897](https://doi.org/10.1021/la0606897)
28. **E.E. Oren**, C. Tamerler & M. Sarikaya. "Metal recognition of septapeptides via polypod molecular architecture" *Nano Letters*, **5** (3), 415-419 (2005). [doi:10.1021/nl048425x](https://doi.org/10.1021/nl048425x)
29. T.O. Ogurtani & **E.E. Oren**. "Irreversible thermodynamics of triple junctions during the intergranular void motion under the electromigration forces" *International Journal of Solids and Structures*, **42** (13), 3918-3952 (2005). [doi:10.1016/j.ijstr.2004.11.013](https://doi.org/10.1016/j.ijstr.2004.11.013)
30. T.O. Ogurtani & **E.E. Oren**. "Electromigration-induced void grain-boundary interactions: the mean time to failure for copper interconnects with bamboo and near-bamboo structures" *Journal of Applied Physics*, **96** (12), 7246-7253 (2004). [doi:10.1063/1.1815389](https://doi.org/10.1063/1.1815389)
31. A. Kalkanli & **E.E. Oren**. "Effect of spraying rate on microstructure of spray deposited Al-Fe-V-Si alloy" *Powder Metallurgy*, **46** (4), 324-328 (2003). [doi:10.1179/003258903225008571](https://doi.org/10.1179/003258903225008571)
32. T.O. Ogurtani, M.R. Gungor & **E.E. Oren**. "Simulation of dislocation damping spectra associated with the collective motion of point defects and kink chain subjected to the bulk segregation" *Journal of Applied Physics*, **91** (4), 1860-1870 (2002). [doi:10.1063/1.1429769](https://doi.org/10.1063/1.1429769)
33. T.O. Ogurtani & **E.E. Oren**. "Computer simulation of void growth dynamics under the action of electromigration and capillary forces in narrow thin interconnects" *Journal of Applied Physics*, **90** (3), 1564-1572 (2001). [doi:10.1063/1.1382835](https://doi.org/10.1063/1.1382835)
34. **E.E. Oren** & A.C. Tas. "Hydrothermal synthesis of pure & Dy doped BaTiO<sub>3</sub> powders at 90 °C" *Metallurgical and Materials Transactions B*, **30**, 1089-93 (1999). [doi:10.1007/s11663-999-0115-5](https://doi.org/10.1007/s11663-999-0115-5)

35. **E.E. Oren**, E. Taspinar & A.C. Tas. "Preparation of lead zirconate ( $\text{PbZrO}_3$ ) by homogeneous precipitation and calcinations" *Journal of American Ceramic Society*, **80** (10), 2714-2716 (1997). [doi:10.1111/j.1151-2916.1997.tb03181.x](https://doi.org/10.1111/j.1151-2916.1997.tb03181.x)

### Proceedings

36. R. Samudrala, **E.E. Oren**, C. Cheng, J. Horst, B. Bernard, M. Gungormus, M. Hnilova, H. Fong, C. Tamerler & M. Sarikaya. "Knowledge-based design of inorganic-binding peptides" *The FNANO08 Conference Proceedings*, 75-80 (2008).
37. T.O. Ogurtani, M.R. Gungor & **E.E. Oren**. "Interactive computer simulation of dislocation damping spectra associated with the coupled motion of geometric kinks and point defects subjected to the bulk segregation phenomenon" *Solid State Phenomena*, **89**, 141-190 (2003).
38. **E.E. Oren** & T.O. Ogurtani. "Void intergranular motion under the action of electromigration forces in thin film interconnects with bamboo structure" *MRS Symp. Proc.*, **695**, 209-215 (2002).
39. **E.E. Oren** & T.O. Ogurtani. "The effect of initial void configuration on the morphological evolution under the action of normalized electron wind forces" *MRS Symp. Proc.*, **714E**, L9.2.1-L9.2.6 (2001).
40. T.O. Ogurtani & **E.E. Oren**, "A computer simulation of void dynamics under the action of electromigration and capillary forces in narrow thin interconnects" *Advanced Metallization Conference*, **16**, 483-487 (2000).
41. **E.E. Oren** & A.C. Tas. "Hydrothermal synthesis of pure and Dy: $\text{BaTiO}_3$  powders at 90°C, the sintering behavior and microstructures of Dy: $\text{BaTiO}_3$  powders heated on Ti-strips" *Dielectric Ceramic Materials: Ceramic Transactions (Wiley-Am. Ceram. Soc.)*, **100**, 95-104 (1999).
42. **E.E. Oren** & A.C. Tas. "Preparation of piezoelectric lead zirconate titanate ( $\text{PbZr}_{0.52}\text{Ti}_{0.48}\text{O}_3$ ) powders by homogeneous precipitation and calcinations" *Dielectric Ceramic Materials: Ceramic Transactions (Wiley-Am. Ceram. Soc.)*, **100**, 105-114 (1999).

### Meeting Abstracts

43. M. Gungormus, H. Fong, **E.E. Oren**, C. Tamerler, M. Somerman & M. Sarikaya. "Cementum-analogs using hydroxyapatite binding peptides: Toward periodontal regeneration" *Abstracts of Papers of the American Chemical Society*, **237**, 25-NANO (2009).
44. R. Samudrala, **E.E. Oren**, C. Tamerler & M. Sarikaya. "In silico design of solid binding peptides as molecular building blocks in technology and medicine" *Abstracts of Papers of the American Chemical Society*, **237**, 32-NANO (2009).
45. T. Kacar, J. Ray, M. Gungormus, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Quartz binding peptides as molecular linkers for co-assembling nanoentities on multifunctional micropatterned substrates" *Abstracts of Papers of the American Chemical Society*, **237**, 13-NANO (2009).
46. D. Sahin, H. Kahraman, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Peptide (GEPI)-protein molecular hybrid construction for materials and medical applications – 'GEPI-based tag application'" *FEBS Journal*, **275**, 371-371 (2008).
47. A. Sert, N.G. Karaguler, D. Sahin, **E.E. Oren**, M. Sarikaya & C. Tamerler. "Construction and expression of a bi-functional peptide by using genetic engineering methods for bionanotechnologies" *FEBS Journal*, **275**, 372-372 (2008).

### Theses

48. **E.E. Oren**. "Computer simulation of electromigration induced void – grain boundary interactions with a special reference to the prediction of cathode failure times in bamboo structures" *Ph. D. Thesis, Middle East Technical University, January 2003*.
49. **E.E. Oren**. "Electromigration – induced transgranular void motion in interconnects with special reference to computer simulation" *M. Sc. Thesis, Middle East Technical University, Sept. 2000*.

## CONFERENCE PRESENTATIONS

(16 invited, 39 talks, 20 posters)

### Invited/Keynote Talks

1. **E. E. Oren** “Bionanodesign: Computational Methods in Bionanotechnology” *Department of Chemical Engineering, Shriram Center for Bioengineering & Chemical Engineering, Stanford University, Palo Alto, CA, USA, March 06, 2017.*
2. **E.E. Oren** “Computational Methods in Bionanotechnology” *Department of Biomedical Engineering, ODTÜ, Ankara, Turkey, November 10, 2016.*
3. **E.E. Oren** “Bionanodesign” *2<sup>nd</sup> Turkish-Mexican Workshop on Science and Technology, CONACYT, Mexico City, Mexico, June 11-12, 2015.*
4. **E.E. Oren** “Quantum dot formation models: Topologic instabilities in epitaxially strained solids” *20<sup>th</sup> Condensed Matter Physics Conference, Hacettepe Univ., Ankara, Turkey, December 26, 2014.*
5. **E.E. Oren** “Computational Methods in Bionanotechnology” *Department of Chemistry, Gazi Univ., Ankara, Turkey, November 12, 2014.*
6. **E.E. Oren** “Computational Methods in Nanobiotechnology” *National Nanotechnology Research Center (UNAM), BILKENT, Ankara, Turkey, December 27, 2013.*
7. **E.E. Oren** “Computational Methods in Nanobiotechnology” *Institute of Applied Mathematics, METU, Ankara, Turkey, April 30, 2013.*
8. **E.E. Oren** “Homology Modeling in Membrane Proteins” *Molecular Dynamics Workshop II, Ankara, Turkey, September 13, 2011.*
9. **E.E. Oren** “Morphological Evolution of Surfaces and Interfaces: Electromigration - Grain Grooving - Thin Film Growth” *Seminar: Nanoscale Devices, Seattle, WA, USA, July 5, 2011.*
10. **E.E. Oren** “Bioinformatics design of solid binding peptides for bionanotechnology” *Biomaterials Seminar, Univ. of Washington, Seattle, WA, USA, March 11, 2010.*
11. **E.E. Oren** & R. Samudrala “Knowledge-based peptide design” *Molecular Biomimetics & Bionanotechnology-IV: Protein-based Materials & Systems for Technology & Medicine, Friday Harbor, WA, USA, August 24-28, 2009.*
12. **E.E. Oren**, R. Samudrala, C. Tamerler & M. Sarikaya “Knowledge-based design of GEPIs as molecular building blocks in bionanotechnology” *SimBioMa Workshop: Challenges in modeling the interface between biomolecules and inorganic surfaces, Mainz, Germany, March 18-20, 2009.*
13. **E.E. Oren**, “Design of inorganic binding peptides for nanotechnology applications” *Nanotechnology Research Center, Bilkent Univ., Ankara, Turkey, July 18, 2008.*
14. **E.E. Oren**, “Modeling biomolecules on inorganic surfaces” *Centre for Scientific Computing, Department of Chemistry, University of Warwick, Keynote Talk, Coventry, UK, July 9-15, 2008.*
15. **E.E. Oren**, “Knowledge based design of inorganic binding peptides” *5<sup>th</sup> Annual Conference on Foundations of nanoscience: Self-assembled architectures and devices, Symp: Self-assembly of Peptide-Protein Nanostructures, Snowbird, UT, USA, April 18-21, 2008.*
16. T.O. Ogurtani, M.R. Gungor & **E.E. Oren**. “Computer simulation of internal friction spectrum utilizing an interactive kink chain mobile foreign interstitials model” *Second International School on Mechanical Spectroscopy – 2, Kraków-Krynica, Poland, December 3-8, 2000.*

### Oral Presentations

17. N.S. Aydın & **E.E. Oren** “Theory and Simulation of Quantum Dot Formation in Heteroepitaxially Grown Thin Films under External Forces” *TMS 2017, Symposium: Computational Thermodynamics and Kinetics, San Diego, CA, USA, February 26-March 02, 2017.*

18. N.S. Aydın & **E.E. Oren** “Design of Heteroepitaxially Grown Quantum Dots Under External Force Fields” *TMS 2017, Symposium: Computational Approaches to Materials for Energy Applications*, San Diego, CA, USA, February 26-March 02, 2017.
19. N.S. Aydın, M. Y. Sengul & **E.E. Oren** “Design of quantum dots via adjusting the material and process properties in heteroepitaxial growth” *IMRC 2016, Symposium A2: Bionanodesign*, Cancun, Mexico, August 14-19, 2016.
20. G. Gokce, E. Candas, N. S. Aydın & **E.E. Oren** “Forecasting antiviral drug resistance development among influenza viruses” *IMRC 2016, Symposium A2: Bionanodesign*, Cancun, Mexico, August 14-19, 2016.
21. H.T. Yener, M. Sahin & **E.E. Oren** “Controlled drug release systems from bulk-degrading polymers” *IMRC 2016, Symposium A2: Bionanodesign*, Cancun, Mexico, August 14-19, 2016.
22. B. Demir, J. Qi, S. Gokce, **E.E. Oren** & M.P. Anantram “Environmental effects on DNA backbone and conductance” *IMRC 2016, Symposium A2: Bionanodesign*, Cancun, Mexico, August 14-19, 2016.
23. E. Candas, G. Gokce, B. Demir, G. Demirel & **E.E. Oren** “Modeling of morphological versatility in self-assembly of Val-Ala and Ala-Val dipeptides” *MRS 2015 Fall Meeting, Symposium WW: Modeling and theory-driven design of soft materials*, Boston, MA, USA, November 29 - December 4, 2015.
24. E. Kayali, E. Mercan, M. Sahin, H.T. Yener, N.S. Aydın, G.K. Dogu, **E.E. Oren** & G.C. Buke “Investigation of catalyst effect on the formation of 1D carbon nanostructures via low temperature vacuum decomposition of SiC” *MRS 2015 Fall Meeting, Symposium Q: Nano carbon materials - 1D to 3D*, Boston, MA, USA, November 29 - December 4, 2015.
25. M.Y. Sengul, S. Haddadian, A. Celik, T.O. Ogurtani & **E.E. Oren** “Simulation of Strained-Heteroepitaxial Quantum Dot Formation Under the Effect of Anisotropic Surface Properties” *MRS 2014 Spring Meeting, "Symposium WW: Materials by Design—Merging Advanced In-Situ Characterization with Predictive Simulation*, San Francisco, CA, ABD, April 21-25, 2014.
26. T.O. Ogurtani, A. Celik, O. Akyıldız & **E.E. Oren** “Nonequilibrium thermodynamics of surfaces and interfaces in solids with applications” *IWPME0 II: International Workshop on the Physics based Modeling of Material Properties & Experimental Observations*, Antalya, Turkey, May 15-17, 2013.
27. T.O. Ogurtani, L.N. Brush & **E.E. Oren** “Effects of electromigration stressing on the topological instabilities of the Stranski-Krastanow islanding” *MRS 2012 Spring Meeting, "Symposium XX: Computational Materials Design in Heterogeneous Systems*, San Francisco, CA, ABD, April 9-13, 2012.
28. J. Qi, S. Edirisinghe, **E.E. Oren** & M.P. Anantram “Charge transport in biomolecules” *IWPSD 2011: XVI International Workshop on the Physics of Semiconductor Devices*, Kanpur, India, December 19-22, 2011.
29. **E.E. Oren**, R. Samudrala, J.S. Evans, M.L. Snead, M.J. Somerman, C. Tamerler & M. Sarikaya “Computational biomimetic design of materials specific peptides” *TMS 2010 139th Annual Meeting & Exhibition" Bio-inspired Materials Design and Processing I: Macromolecular Concepts and Applications*, Seattle, WA, USA, February 14-18, 2010.
30. C. So, M. Noyes, **E.E. Oren**, H. Meskine, H. Yazici, P. Mulheren, C. Tamerler, J. Evans & M. Sarikaya “Binding and assembly of material-specific peptides on solid substrates by atomic force microscopy” *TMS 2010 139th Annual Meeting & Exhibition" Biological Materials Science: Computational Materials Science*, Seattle, WA, USA, February 14-18, 2010.
31. Y. Hayamizu, M. Hnilova, **E.E. Oren**, C. Zhong, C. Tamerler, M. Rolandi & M. Sarikaya “Electronic transport through solid-binding peptides” *TMS 2010 139th Annual Meeting & Exhibition" Biological Materials Science: Bio-inspired Materials Design and Processing I: Macromolecular Concepts and Applications*, Seattle, WA, USA, February 14-18, 2010.



32. T. Kacar, M. Hnilova, B. Taktak, Y. Hayamizu, **E.E. Oren**, J. Evans, C. Tamerler, & M. Sarikaya "Bridging inorganic nanoparticles and biomolecules via genetically engineered peptides" *TMS 2010 139th Annual Meeting & Exhibition" Biological Materials Science: Bio-inspired Materials Design and Processing I: Macromolecular Concepts and Applications*, Seattle, WA, USA, February 14-18, 2010.
33. **E.E. Oren**, R. Samudrala, C. Tamerler & M. Sarikaya. "In silico design of solid binding peptides as molecular building blocks in technology and medicine" *237th ACS National Meeting Division of Medicinal Chemistry*, Salt Lake City, UT, USA, March 22-26, 2009.
34. T. Kacar, J. Ray, M. Gungormus, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Quartz binding peptides as molecular linkers for co-assembling nanoentities on multifunctional micropatterned substrates" *237th ACS National Meeting Division of Medicinal Chemistry*, Salt Lake City, UT, USA, March 22-26, 2009.
35. M. Gungormus, H. Fong, **E.E. Oren**, C. Tamerler, M. Somerman & M. Sarikaya. "Cementum-analogs using hydroxyapatite binding peptides: Toward periodontal regeneration" *237th ACS National Meeting Division of Medicinal Chemistry*, Salt Lake City, UT, USA, March 22-26, 2009.
36. C. Tamerler, R. Samudrala, **E.E. Oren**, J. Evans, B. Traxler & M. Sarikaya. "Molecular biomimetics – coupling peptides and nanoparticles for nanotechnology and medicine" *6th Annual Conference on Foundations of Nanoscience: Biomedical Nanotechnology*, Snowbird, UT, USA, April 20-24, 2009.
37. **E.E. Oren**, R. Samudrala, J.S. Evans, C. Tamerler & M. Sarikaya "Bioinformatics-based design of multifunctional solid-binding peptides" *MRS 2008 Fall Meeting, "Symposium UU: Molecular Biomimetics and Materials Design*, Boston, MA, USA, December 1-2, 2009.
38. C. So, J. Kulp, H. Meshine, P. Mulheran, **E.E. Oren**, C. Tamerler, J. S. Evans & M. Sarikaya. "Binding, molecular recognition, and supramolecular assembly of solid binding peptides on solid substrates: a multi-scale perspective" *MRS 2009 Fall Meeting, Symposium UU: Biomimetics and Materials Design*, Boston, MA, USA, November 30-December 2, 2009.
39. T. Kacar, M. Gungormus, Y. Hayamizu, **E.E. Oren**, J.S. Evans, C. Tamerler & M. Sarikaya. "Nanoparticle assembly via bifunctional genetically engineered peptides for inorganics" *MRS 2009 Fall Meeting, Symposium TT: Nanobiotechnology and Nanobiophotonics--Opportunities and Challenges*, Boston, MA, USA, November 30-December 2, 2009.
40. **E.E. Oren**, R. Samudrala, J.A. Horst, M. Gungormus, H. Fong, Hnilova, C. Tamerler & M. Sarikaya. "In silico prediction of functional binding domains of natural proteins" *MRS 2008 Spring Meeting, Symposium DD: From biological materials to biomimetic material synthesis*, San Francisco, CA, USA, March 24-28, 2008.
41. T. Kacar, M. Gungormus, M. Hnilova, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Optically Active Metal Nanoparticle and Quantum Dot Co-Immobilization Using Genetically Engineered Peptides for Inorganics" *MRS 2008 Fall Meeting, Symposium FF: Nanofunctional Materials, Structures, and Devices for Biomedical Applications*, Boston, MA, USA, December 1-5, 2008.
42. **E.E. Oren**, M. Gungormus, R. Samudrala, J.A. Horst, H. Fong, M. Hnilova, J. Evans, M. Snead, M. Somerman, C. Tamerler & M. Sarikaya. "A knowledge-based quest for amelogenin function in enamel biomineralization" *MRS 2008 Fall Meeting, "Symposium Y: Biomineral Interfaces – From Experiment to Theory* Boston, MA, USA, December 1-5, 2008.
43. **E.E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, M. Gungormus, U.O.S. Seker, S. Cetinel, A. Cebeci, N.G. Karaguler, C. Tamerler & M. Sarikaya. "A novel informatics-based approach for the design of inorganic binding peptides" *MRS 2007 Spring Meeting, "Symposium T: The nature of design-utilizing biology's portfolio*, San Francisco, CA, USA, April 10-13, 2007.
44. J.S. Evans, J.L. Kulp, I.W. Kim, S. Collino, **E.E. Oren**, H. Zareie, C. So, C. Tamerler & M. Sarikaya. "Guiding theory: Materials genomics and lessons learned from polypeptide "interactions" with natural and artificial inorganic solids" *Centre Europeen de Calcul Atomique*

*et Moleculaire (CECAM) Workshop on "Modeling the interaction of biomolecules with inorganic surfaces*, Lyon, France, July 25-27, 2007.

45. **E.E. Oren**, R. Samudrala, D. Sahin, T. Kacar, M. Hnilova, C. Tamerler & M. Sarikaya. "Design of multifunctional binding peptides" *MRS 2007 Fall Meeting, Symposium NN: Protein and peptide engineering for therapeutic and functional materials*, Boston, MA, USA, November 26-30, 2007.
46. J.S. Evans, W.K. II, J.L. Kulp, S. Collino, K. Delak, U.O.S. Seker, C. So, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Molecular structures of engineered inorganic-binding peptides" *MRS 2007 Fall Meeting, Symposium NN: Protein and Peptide Engineering for Therapeutic and Functional Materials*, Boston, MA, USA, November 26-28, 2007.
47. C. So, **E.E. Oren**, U.O.S. Seker, B. R. Wilson, J. Kulp, C. Tamerler, J.S. Evans & M. Sarikaya. "Supramolecular Self-Assembly of a Metal-binding Polypeptide and Implications for Molecular Recognition" *MRS 2007 Fall Meeting, Symposium NN: Protein and Peptide Engineering for Therapeutic and Functional Materials*, Boston, MA, USA, November 26-28, 2007.
48. M. Sarikaya, C. Tamerler, M. Duman, E. Venkatasubramanian, S. Dincer, **E.E. Oren**, H. Dai, C. Nguyen, D.T. Schwartz & F. Baneyx. "Recognition and binding of engineered polypeptides on functional inorganics" *MRS 2004 Spring Meeting, Symposium Z: Hybrid Biological-Inorganic Interfaces*, San Francisco, CA, USA, April 12-16, 2004.
49. M. Sarikaya, C. Tamerler, **E.E. Oren**, M.H. Zazaie, H. Fong & F. Baneyx. "Molecular biomimetics: Biomaterialization and assembly using engineered polypeptides" *8<sup>th</sup> International Conference on the Chemistry and Biology of Mineralized Tissues*, Alberta, Canada, October 17-22, 2004.
50. E. Venkatasubramanian, M. Duman, T. Kacar, D. Heidel, **E.E. Oren**, C. Tamerler & M. Sarikaya. "Binding and Specificity of Engineered Polypeptides on Functional Inorganics" *MRS 2004 Fall Meeting, Symposium Z: Bio-Inspired and Bio-Derived Materials and Processes*, Boston, MA, USA, November 29-December 2, 2004.
51. U.O.S. Seker, **E.E. Oren**, C. Selcuki, C. Tamerler & M. Sarikaya. "Molecular modeling of engineered polypeptides" *MRS 2004 Fall Meeting, Symposium Z: Bio-Inspired and Bio-Derived Materials and Processes*, Boston, MA, USA, November 29-December 2, 2004.
52. **E.E. Oren** & T.O. Ogurtani. "Mathematical modeling of the void evolution dynamics under the action of electromigration and capillary forces in thin interconnects" *International Conference on Mathematical Modeling and Scientific Computing, Middle East Technical University and Selçuk University*, Ankara and Konya, Turkey, April 2-6, 2001.
53. **E.E. Oren** & T.O. Ogurtani. "Void Intergranular Motion under the Action of Electromigration Forces in Thin Film Interconnects with Bamboo Structure" *MRS 2001 Fall Meeting, Symposium L: Thin Films, Stresses and Mechanical Properties IX*, Boston, MA, USA, November 26-30, 2001.
54. **E.E. Oren** & A.C. TAS, "Hydrothermal Synthesis of Pure and Dy:BaTiO<sub>3</sub> Powders at 90°C, Their Sintering Behavior, and Microstructures of Dy:BaTiO<sub>3</sub> Powders Heated on Ti-Strips" *Journal of American Ceramic Society, 100th Annual Meeting & Exposition*, Cincinnati, OH, USA, May 3-6, 1998.
55. **E.E. Oren** & A.C. TAS, "Preparation of Piezoelectric Lead Zirconate Titanate (PbZr<sub>0.52</sub>Ti<sub>0.48</sub>O<sub>3</sub>) Powders by Homogeneous Precipitation and Calcination" *Journal of American Ceramic Society, 100th Annual Meeting & Exposition*, Cincinnati, OH, USA, May 3-6, 1998.

#### **Poster Presentations**

56. M. Sahin, H.T. Yener, N.S. Aydin, E. Kayali, E. Mercan, G. C. Buke & **E.E. Oren** "Modeling of morphological evolution of catalyst for the synthesis of 1D carbon nanostructures on SiC" *MRS 2015 Fall Meeting, Symposium TT: Topology in materials science - biological and functional nanomaterials, metrology and modeling*, Boston, MA, USA, November 29 - December 4, 2015.

57. A. Celik, M.Y. Sengul, S. Haddadian, T.O. Ogurtani & **E.E. Oren** "Quantum dot formation via the topological instabilities of the epitaxially strained thin films" *MRS 2014 Fall Meeting, Symposium NN: Mathematical and Computational Aspects of Materials Science*, Boston, MA, USA, November 30 - December 5, 2014.
58. M.Y. Sengul, S. Haddadian, A. Celik, T.O. Ogurtani & **E.E. Oren** "Strained-heteroepitaxial quantum dots with anisotropic surface properties" *IWPME0 II: International Workshop on the Physics based Modeling of Material Properties & Experimental Observations*, Antalya, Turkey, May 15-17, 2013.
59. T. Kacar, M. Gungormus, M. Hnilova, C. So, **E.E. Oren**, C. Tamerler & M Sarikaya. "Optoelectronic properties of ZnO nanoparticles deposition on porous silicon" *6<sup>th</sup> Annual Conference on Foundations of Nanoscience: Nanoplasmonics & Nanophotovoltaics*, Snowbird, UT, USA, April 20-24, 2009.
60. M. Hnilova, B. Taktak, **E.E. Oren**, C. So, T. Kacar, C. Tamerler & M. Sarikaya. "Targeted immobilization of nanostructures and biomolecules through peptide-based biolinkers towards nanosensing platforms" *MRS 2008 Fall Meeting, Symposium FF: Nanofunctional Materials, Structures, and Devices for Biomedical Applications*, Boston, MA, USA, November 30-December 2, 2008.
61. M. Gungormus, S. Cetinel, **E.E. Oren**, B. R. Wilson, C. So, M. Somerman, C. Tamerler & M. Sarikaya. "Surface Bio-Engineering Using Peptides for Enhanced Cell Adhesion and Proliferation" *MRS 2008 Spring Meeting, Symposium DD: From Biological Materials to Biomimetic Material Synthesis*, San Francisco, CA, USA, March 25-28, 2008.
62. M. Hnilova, **E.E. Oren**, C. So, T. Kacar, B.A. Parviz, C. Tamerler & M. Sarikaya. "Peptide-Directed Immobilization of Optical Active Nanostructures and Fluorophores towards Nanosensing Platforms" *MRS 2008 Spring Meeting, Symposium DD: From Biological Materials to Biomimetic Material Synthesis*, San Francisco, CA, USA, March 25-28, 2008.
63. T. Kacar, M. Gungormus, **E.E. Oren**, M. Hnilova, C. Tamerler & M. Sarikaya. "LSPR Based Nanophotonic Detection of Biomolecules through Genetically Engineered Peptides and Molecular Constructs" *MRS 2008 Spring Meeting, Symposium EE: Responsive Biomaterials for Biomedical Applications*, Poster Presentation, San Francisco, CA, USA, March 25-28, 2008.
64. C. So, **E.E. Oren**, J. Kulp, H. Zereie, C. Tamerler & J. Evans. "Molecular Basis for Patterned Supramolecular Self Assembly of a Genetically Engineered Gold Binding Protein on Au {111}" *4th Annual Conference on Foundations of Nanoscience: Self-assembled architectures and devices, Symposium: Self-assembly of Peptide-Protein Nanostructures*, Snowbird, UT, USA, April 18-21, 2007.
65. M. Hnilova, **E.E. Oren**, U.O.S. Seker, B. Wilson, X. Xiorong, C. Tamerler & M. Sarikaya. "Selection of Specific Gold-Binding Peptides via Cell Surface Display" *MRS 2007 Spring Meeting, Symposium T: The Nature of Design--Utilizing Biology's Portfolio*, San Francisco, CA, USA, April 10-13, 2007.
66. **E.E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, U.O.S. Seker, M. Gungormus, S. Cetinel, N.G. Karaguler, C. Tamerler & M. Sarikaya. "In silico design of inorganic binding peptides" *Molecular Biomimetics and Bionanotechnology Workshop*, Istanbul, Turkey, May 21-23, 2007.
67. **E.E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, C. Tamerler & M. Sarikaya. "In silico design of inorganic binding peptides" *4th Annual Conference on Foundations of Nanoscience: Self-assembled architectures and devices, Symposium: Self-assembly of Peptide-Protein Nanostructures*, Snowbird, UT, USA, April 18-21, 2007.
68. **E.E. Oren**, C. Tamerler, M. Sarikaya & R. Samudrala. "A novel informatics-based approach for the design of inorganic binding peptides" *Molecular Biomimetics I: Protein Based Materials for Technology and Medicine*, San Juan Island, WA, USA, Sep 6-8, 2006.
69. **E.E. Oren**, C. Tamerler & M. Sarikaya. "Metal recognition of GEPI's via polypod molecular architecture" *Molecular Biomimetics I: Protein Based Materials for Technology and Medicine*, San Juan Island, WA, USA, Sep 6-8, 2006.

70. **E.E. Oren**, R. Samudrala, D. Sahin, S. Dincer, C. Tamerler & M. Sarikaya. “*De novo* design of inorganic binding polypeptides” *MRS 2005 Fall Meeting, Symposium LL: Combinatorial methods and informatics in materials science*, Boston, MA, USA, Nov 28-Dec 1, 2005.
71. **E.E. Oren**, R. Samudrala, D. Sahin, N. Gul-Karaguler, C. Tamerler & M. Sarikaya. “Bioinformatics-based *de novo* design of biocombinatorially pregenerated quartz binding peptides” *Nanoscale Science and Technology Workshop*, Seattle, WA, USA, Sep 20-21, 2005.
72. **E.E. Oren**, R. Samudrala, D. Sahin, C. Tamerler & M. Sarikaya. “Structure prediction of biocombinatorially generated quartz binding peptides” *Nanoscale Science and Technology Workshop*, Snowbird, WA, USA, September 20-21, 2005.
73. **E.E. Oren**, R. Samudrala, D. Sahin, S. Dincer, C. Tamerler & M. Sarikaya. “Similarity analysis of polypeptides generated via directed evolution” *2nd Annual Conference on Foundations of Nanoscience: Self-assembled architectures and devices, Symposium: Principles and Theory of Self-Assembly*, Snowbird, UT, USA, April 24-28, 2005.
74. **E.E. Oren**, D. Sahin, C. Tamerler & M. Sarikaya. “Similarity analysis of genetically engineered polypeptides for inorganics” *MRS 2004 Fall Meeting, Symposium Z: Bio-inspired and bio-derived materials and processes*, Boston, MA, USA, November 29-December 3, 2004.
75. **E.E. Oren** & T.O. Ogurtani. “Interactive computer simulation of dislocation damping spectra associated with the coupled motion of geometric kinks and point defects subjected to the bulk segregation” *ICIFUAS 13*, Bilbao, Spain, July 8-12, 2002.

## TEACHING EXPERIENCE

### Courses

- BMM 101 Introduction to Biomedical Engineering
- BMM 205/205L Fundamentals of Materials Science
- BMM 305 Biomaterials
- BMM 310/311L Computational Methods in Biomedical Engineering
- MAK 217/217L Materials Science
- MAK 536 Nanomaterials and Nanotechnology
- MBN 305 Phase Diagrams and Transformations
- MBN 310 Numerical Methods in Materials Science & Engineering
- MNT 521 Computational Methods in Bio and Nanotechnology

### Invited Lectures

- MSE 298 Introduction to Modern Materials
- MSE 555 Biomimetics: Bioinspired Design and Processing of Materials
- CONJ 548 Modelling Proteins and Proteomes
- BioE/ChemE 511 Biomaterials Seminar
- Phys576/Chem560 Frontiers in Nanotechnology

### Computer Laboratory Classes Developed

- Met.E. 502 Diffusion Phenomenon
- Met.E. 503/504 Mathematical Methods in Materials Science I/II
- Met.E. 528 Computer Applications in Material Science

### Seminar Series Organization

- [GEMSEC Student Research Discussion Seminar Series](#)

### Outreach Activities

- [UW Engineering Discovery Days](#), April 23 & 24, 2010
- [Paws-On Science: Huskies Weekend at Pacific Science Center](#), April 9 -11, 2010.
- [Pacific Science Center Discovery Corps Visits GEMSEC](#), March 2, 2008.
- [Strange Matter Exhibition at Pacific Science Center](#), February 2 - May 4, 2008.
- Mentored High School and Freshman Students.

## PROFESSIONAL ACTIVITIES

- *Member*, Materials Research Society (MRS)
- *Member*, American Chemical Society (ACS)
- *Member*, The Minerals Metals & Materials Society (TMS)
- *Manuscript Reviewer* for *Journal of Applied Physics*, *Nano Letters*, *Langmuir*, *Journal of Materials Research*, *Journal of Materials Science*, *ChemPhysChem*, *Small*, and *MRS Proceedings*.

## FIELDS OF INTERESTS

- **Materials Science**
  - ✓ ***Theoretical and Computational Materials Science***  
Irreversible thermodynamics of surfaces and interfaces; Continuum mechanics; Boundary and Finite element methods; Electromigration; Internal friction; Sintering behavior of powder compacts; Thin film growth modes (Volmer-Weber, Frank-van der Merwe, Stranski-Krastanov); Fabricating epitaxial nanoscale structures (quantum dots); Mechanical behavior of micro- and nano-size materials; Modeling and design of inorganic binding peptides.
  - ✓ ***High-Tech Ceramics***  
Ceramic powders (*i.e.*  $PbZrO_3$ ,  $PbZr_{0.52}Ti_{0.48}O_3$ ,  $BaTiO_3$ ) and Ceramic powder synthesis techniques: (*i.e.* Homogeneous precipitation, hydrothermal synthesis).
  - ✓ ***Biomimetics***  
Protein-inorganic interactions and their binding kinetic analysis (QCM, SPR); Peptide directed assembly and material synthesis.
- **Physics**
  - ✓ ***Solid State Physics***  
Electrical, magnetic and optical properties of materials.
  - ✓ ***Astronomy***  
Amateur observations.
- **Biology/Biotechnology/Biomedical Engineering**
  - ✓ ***Molecular Biology***  
Protein structure prediction: Homology and template based modeling; Atomistic molecular dynamics modeling, *Ab initio* quantum mechanical calculations, protein-protein interactions (shape complementarity and electrostatic).
  - ✓ ***Bioinformatics***  
Protein/Peptide knowledge (sequence)-based design and characterization.
  - ✓ ***Biomaterials***  
Biomineralization, biocompatibility.
- **Computer-Knowledge**
  - ✓ ***Operation Systems***  
Unix / Linux / Windows 9X/NT/2000/XP/Vista.
  - ✓ ***Programming Languages***  
Pascal / Fortran / C and C++ / Perl / Python, MathCad, MatLab.
  - ✓ ***Softwares***  
HyperChem, NAMD, Tinker, Modeller, Hex, Raptor, YASARA, VMD, Jmol, PyMOL, RasMol, molecular modeling and visualization systems; Diamond, CrystalMaker and Crystal studio crystallography programs.
  - ✓ ***WEB Administration***  
<http://eeoren.etu.edu.tr>  
<http://bmm.etu.edu.tr>  
<http://depts.washington.edu/gemsec/>  
<http://depts.washinton.edu/bionano/>  
<http://www.csl.mete.metu.edu/>

## Citation Report

**Author:** (oren ee) (Ersin Emre Oren)

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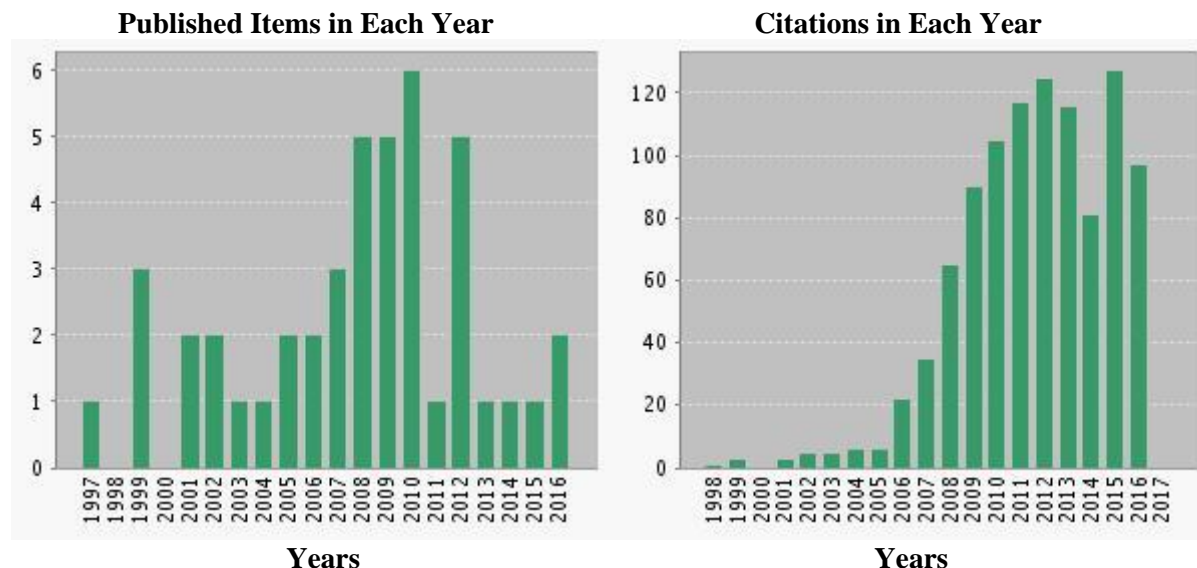
**Databases:** SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.

**Results found:** 44

**Sum of the Times Cited:** 1057

**Average Citations per Item:** 224.58

**h-index:** 18



**Table: Publication Statistics**

Name of the Journal	# of Publication	Database	Impact Factor
Advanced Materials	1	SCI	18.960
Nano Letters	1	SCI	13.779
ACS Nano	1	SCI	13.334
Small	1	SCI	8.320
ACS Applied Materials & Interfaces	1	SCI	7.145
MRS Bulletin	1	SCI	6.060
ACTA Biomaterialia	1	SCI	6.008
Bioinformatics	1	SCI	5.766
Biomacromolecules	1	SCI	5.583
Langmuir	5	SCI	3.993
Soft Matter	1	SCI	3.798
Journal of Colloid and Interface Science	1	SCI	3.368
Applied Physics Letters	1	SCI	3.302
Journal of Physics D: Applied Physics	1	SCI	2.721
Journal of the American Ceramic Society	1	SCI	2.610
International Journal of Oral Science	1	SCI	2.531
Biopolymers (Peptide Science)	1	SCI	2.385
Journal of Materials Science	1	SCI	2.371
International Journal of Solids and Structures	1	SCI	2.214
Journal of Applied Physics	7	SCI	2.183
Philosophical Magazine	1	SCI	1.825
Thin Solid Films	1	SCI	1.759
Metallurgical and Materials Transactions B	1	SCI	1.461
Bioinspired, Biomimetic and Nanobiomaterials	1	SCI	0.978
Powder Metallurgy	1	SCI	0.772