

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,

B. Sc. Minor Program, Solid State Physics in the Department of Physics,

Middle East Technical University, Ankara, TURKEY, Graduated June 1997.

PROFESSIONAL EXPERIENCE

- 2008 – Present **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

- Postdoctoral Fellowship, National Science Foundation (NSF) MRSEC Program through the University of Washington Genetically Engineered Materials Science and Engineering Center (DMR 0520567) (PIs: Mehmet Sarikaya & Ram Samudrala).
- Postdoctoral Fellowship, Army Research Office (ARO) DURINT program through the University of Washington (DAAD19-01-1-04999) (PI: Mehmet Sarikaya).
- 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.

- Scientific and Technical Research Council of Turkey (TUBITAK)-NATO-A2 Research Grant (to visit Max-Planck-Institut für Metallforschung, Stuttgart, GERMANY, 2001).
- Fulbright Conference Travel Grant (MRS 2001 Fall Meeting, Boston, Massachusetts, USA).
- The Best Thesis Award 2000, Prof. Dr. Mustafa N. Parlar Education & Research Foundation, Middle East Technical University (METU), Ankara, TURKEY.

RESEARCH FUNDING

- Co-PI, Turkish Scientific and Technical Research Council (TUBITAK) 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. (\$ 100,000) (PI: Tarik Omer Ogurtani).
- Co-PI, TUBITAK 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. (\$ 110,000) (PI: Tarik Omer Ogurtani).

PATENTS

1. GEPISOME-Single-Step Fictionalization for Molecular Targeting and Probing, *US Patent Application in progress*, (2010).
2. Functional Peptides for Bionanosynthesis Derived from Biological Proteins, *US Patent Application in progress*, (2010).
3. Computational Design of Inorganic Binding Peptides, *US Patent Pending*, (2008).

SCIENTIFIC PUBLICATIONS

(37 listed: 27 papers, 8 proceedings and 2 theses; Total # of citations as of November 2010: 316)

Publications in Review

1. M. Hnilova, C. R. So, **E. E. Oren**, B. R. Wilson, T. Kacar, C. Tamerler and M. Sarikaya. "Targeted Co-Assembly of Quantum Dots and Fluorophores on Patterned Substrates using Material-Specific Peptides" *ACS Nano*, in review (2010).
2. O. Akyildiz, **E. E. Oren** and T. O. Ogurtani. "Mesoscopic nonequilibrium thermodynamics treatment of the grain boundary thermal grooving induced by the anisotropic surface drift diffusion" *Journal of Computational Materials Science*, in review (2010).

Publications

3. T. O. Ogurtani, A. Celik and **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*, in print (2010).
4. R. Notman, **E. E. Oren**, C. Tamerler, M. Sarikaya, R. Samudrala and T. R. Walsh. "Solution studies of strong and weak quartz-binding peptides using replica exchange molecular dynamics" *Biomacromolecules*, in print (2010).
5. T. O. Ogurtani, A. Celik and **E. E. Oren**. "Morphological evolution in a strained-heteroepitaxial solid droplet on a rigid substrate: Dynamical simulations" *Journal of Applied Physics*, **108**, 063527 (2010).
Chosen to appear in the *Virtual Journal of Nanoscale Science & Technology* September 27, 2010.
6. **E. E. Oren**, R. Notman, I. W. Kim, J. S. Evans, T. R. Walsh, R. Samudrala, C. Tamerler and M. Sarikaya. "Probing the molecular mechanisms of quartz-binding peptides" *Langmuir*, **26**, 11003-11009 (2010).
7. A. Dezieck, O. Acton, K. Leong, **E. E. Oren**, H. Ma, C. Tamerler, M. Sarikaya and 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).

8. C. Tamerler, D. Khatayevich, M. Gungormus, T. Kacar, **E. E. Oren**, M. Hnilova and M. Sarikaya. "Molecular biomimetics: Gepi-based biological routes to technology" *Biopolymers: Peptide Science*, **94**, 78-94 (2010).
9. C. R. So, J. L. Kulp, **E. E. Oren**, H. Zareie, C. Tamerler, J. S. Evans and M. Sarikaya. "Molecular recognition and supramolecular self-assembly of a genetically engineered gold binding peptide on Au{111}" *ACS Nano*, **3**, 1525-1531 (2009).
10. T. Kacar, J. Ray, M. Gungormus, **E. E. Oren**, C. Tamerler and M. Sarikaya. "Quartz binding peptides used as linkers for making multi-(bio)functional micro-patterned systems" *Advanced Materials*, **21**, 295-299 (2009).
11. M. Hnilova, **E. E. Oren**, U. O. S. Seker, B. Wilson, S. Collino, J. S. Evans, C. Tamerler and M. Sarikaya. "Effect of molecular conformations on adsorption behavior of gold binding peptides" *Langmuir*, **24**, 12440-12445 (2008).
12. T. O. Ogurtani, O. Akyildiz and **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).
13. J. S. Evans, R. Samudrala, T. Walsh, **E. E. Oren** and C. Tamerler. "The molecular design of inorganic-binding polypeptides" *MRS Bulletin*, **33**, (5) 514-518 (2008). (Cover designed by EEO)
14. D. Sahin, H. Kahraman, **E. E. Oren**, C. Tamerler and M. Sarikaya. "Peptide (GEPI)-protein molecular hybrid construction for materials and medical applications – 'GEPI-based tag application'" *FEBS Journal*, **275**, 371-371 (2008).
15. A. Sert, N. G. Karaguler, D. Sahin, **E. E. Oren**, M. Sarikaya and C. Tamerler. "Construction and expression of a bi-functional peptide by using genetic engineering methods for bionanotechnologies" *FEBS Journal*, **275**, 372-372 (2008).
16. R. Samudrala, **E. E. Oren**, C. Cheng, J. Horst, B. Bernard, M. Gungormus, M. Hnilova, H. Fong, C. Tamerler and M. Sarikaya. "Knowledge-based design of inorganic-binding peptides" *The FNANO08 Conference Proceedings*, 75-80 (2008).
17. **E. E. Oren**, C. Tamerler, D. Sahin, M. Hnilova, U. O. S. Seker, M. Sarikaya and R. Samudrala. "A novel knowledge-based approach to design inorganic-binding peptides" *Bioinformatics*, **23**, (21), 2816-2822 (2007).
18. T. O. Ogurtani, A. Celik and **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).
19. U. O. S. Seker, B. Wilson, S. Dincer, I. W. Kim, **E. E. Oren**, J. S. Evans, C. Tamerler, and M. Sarikaya. "Adsorption behavior of linear and cyclic genetically engineered platinum binding peptides" *Langmuir*, **23**, 7895-7900 (2007).
20. C. Tamerler, M. Duman, **E. E. Oren**, M. Gungormus, X. Xiong, B. A. Parviz and M. Sarikaya. "Materials specificity and directed assembly of a gold binding peptide" *Small*, **2** (11), 1372-1378 (2006).
21. C. Tamerler, **E. E. Oren**, M. Duman, E. Venkatasubramanian and 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).
22. **E. E. Oren**, C. Tamerler and M. Sarikaya. "Metal recognition of septapeptides via polypod molecular architecture" *Nano Letters*, **5** (3), 415-419 (2005).
23. T. O. Ogurtani and **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).
24. T. O. Ogurtani and **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).

25. A. Kalkanli and **E. E. Oren**. “Effect of spraying rate on microstructure of spray deposited Al-Fe-V-Si alloy” *Powder Metallurgy*, **46** (4), 324-328 (2003).
26. T. O. Ogurtani, M. R. Gungor and **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).
27. **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*.
28. **E. E. Oren** and 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).
29. T. O. Ogurtani, M. R. Gungor and **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).
30. T. O. Ogurtani and **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).
31. **E. E. Oren** and 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).
32. **E. E. Oren**. “Electromigration – induced transgranular void motion in interconnects with special reference to computer simulation” *M. Sc. Thesis, Middle East Technical University, September 2000*.
33. T. O. Ogurtani and **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).
34. **E. E. Oren** and A. C. Tas. “Hydrothermal synthesis of pure and Dy doped BaTiO₃ powders at 90 °C” *Metallurgical and Materials Transactions B*, **30**, 1089-1093 (1999).
35. **E. E. Oren** and A. C. Tas. “Hydrothermal synthesis of pure and Dy:BaTiO₃ powders at 90°C, the sintering behavior and microstructures of Dy:BaTiO₃ powders heated on Ti-strips” *Dielectric Ceramic Materials: Ceramic Transactions (Wiley-Am. Ceram. Soc.)*, **100**, 95-104 (1999).
36. **E. E. Oren** and A. C. Tas. “Preparation of piezoelectric lead zirconate titanate (PbZr_{0.52}Ti_{0.48}O₃) powders by homogeneous precipitation and calcinations” *Dielectric Ceramic Materials: Ceramic Transactions (Wiley-Am. Ceram. Soc.)*, **100**, 105-114 (1999).
37. **E. E. Oren**, E. Taspinar and A. C. Tas. “Preparation of lead zirconate (PbZrO₃) by homogeneous precipitation and calcinations” *Journal of American Ceramic Society*, **80** (10), 2714-2716 (1997).

Publications in Preparation

(5 listed: Only the first author ones listed below)

1. **E. E. Oren**... “Probing the molecular mechanisms of graphite/graphene-binding peptides” *Nano Letters*, to be submitted (2010).
2. **E. E. Oren**, R. Samudrala, M. Hnilova, S. Cetinel, B. Wilson, N. G. Karaguler, C. Tamerler and M. Sarikaya. “*In silico* design of materials specific peptides” *PNAS*, to be submitted (2010).
3. **E. E. Oren**... “Bionanoinformatics: A knowledge-based quest for the understanding of amelogenin function in enamel biomineralization” *Bioinformatics*, to be submitted (2010).
4. **E. E. Oren**... “A novel motif based scoring function to design proteins with tunable binding affinity to solids” *Bioinformatics*, to be submitted (2010).
5. **E. E. Oren**... “Design of functional protein nanotiles as self assembling monolayers for nanotechnology” *Nature Nanotechnology*, to be submitted (2010).

CONFERENCE PRESENTATIONS

(28 listed: 17 talks, 11 posters + > 20 co-authored presentation).

Invited/Keynote Talks

1. **E. E. Oren** “Bioinformatics design of solid binding peptides for bionanotechnology” *Biomaterials Seminar, Univ. of Washington*, Invited Talk, Seattle, WA, USA, March 11, 2010.
2. **E. E. Oren** and R. Samudrala “Knowledge-based peptide design” *Molecular Biomimetics & Bionanotechnology-IV : Protein-based Materials & Systems for Technology & Medicine*, Invited Talk, Friday Harbor, WA, USA, August 24-28, 2009.
3. **E. E. Oren**, R. Samudrala, C. Tamerler and 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*, Invited Talk, Mainz, Germany, March 18-20, 2009.
4. **E. E. Oren**, “Design of inorganic binding peptides for nanotechnology applications” *Nanotechnology Research Center, Bilkent Univ.*, Invited Talk, Ankara, Turkey, July 18, 2008.
5. **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.
6. **E. E. Oren**, “Knowledge based design of inorganic binding peptides” *5th Annual Conference on Foundations of Nanoscience: Self-assembled architectures and devices, Symposium: Self-assembly of Peptide-Protein Nanostructures*, Invited Talk, Snowbird, UT, USA, April 18-21, 2008.
7. T. O. Ogurtani, M. R. Gungor and **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*, Invited Talk, Kraków-Krynica, Poland, December 3-8, 2000.

Oral/Poster Presentations

8. **E. E. Oren**, R. Samudrala, J. S. Evans, Malcolm L. Snead, Martha J. Somerman, C. Tamerler and 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*, Oral Presentation, Seattle, WA, USA, February 14-18, 2010.
9. **E. E. Oren**, R. Samudrala, J. S. Evans, C. Tamerler and M. Sarikaya “Bioinformatics-based design of multifunctional solid-binding peptides” *MRS 2008 Fall Meeting, "Symposium UU: Molecular Biomimetics and Materials Design*, Oral Presentation, Boston, MA, USA, December 1-30, 2009.
10. **E. E. Oren**, R. Samudrala, C. Tamerler and 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*, Oral Presentation, Salt Lake City, UT, USA, March 22-26, 2009.
11. **E. E. Oren**, M. Gungormus, R. Samudrala, J. A. Horst, H. Fong, M. Hnilova, J. Evans, M. Snead, M. Somerman, C. Tamerler and M. Sarikaya. “A knowledge-based quest for amelogenin function in enamel biomineralization” *MRS 2008 Fall Meeting, "Symposium Y: Biomineral Interfaces – From Experiment to Theory* Oral Presentation, Boston, MA, USA, December 01-05, 2008.
12. **E. E. Oren**, R. Samudrala, J. A. Horst, M. Gungormus, H. Fong, Hnilova, C. Tamerler and 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*, Oral Presentation, San Francisco, CA, USA, March 24-28, 2008.
13. **E. E. Oren**, R. Samudrala, D. Sahin, T. Kacar, M. Hnilova, C. Tamerler and M. Sarikaya. “Design of multifunctional binding peptides” *MRS 2007 Fall Meeting, Symposium NN: Protein and peptide engineering for therapeutic and functional materials*, Oral Presentation, Boston, MA, USA, November 26-30, 2007.

14. **E. E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, U.O.S. Seker, M. Gungormus, S. Cetinel, N.G. Karaguler, C. Tamerler and M. Sarikaya. "In silico design of inorganic binding peptides" *Molecular Biomimetics and Bionanotechnology Workshop*, Poster Presentation, Istanbul, Turkey, May 21-23, 2007.
15. **E. E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, C. Tamerler and 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*, Poster Presentation, Snowbird, UT, USA, April 18-21, 2007.
16. **E. E. Oren**, R. Samudrala, D. Sahin, M. Hnilova, M. Gungormus, U. O. S. Seker, S. Cetinel, A. Cebeci, N. G. Karaguler, C. Tamerler and 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*, Oral Presentation, San Francisco, CA, USA, April 10-13, 2007.
17. **E. E. Oren**, C. Tamerler, M. Sarikaya and R. Samudrala. "A novel informatics-based approach for the design of inorganic binding peptides" *Molecular Biomimetics I: Protein Based Materials for Technology and Medicine*, Poster Presentation, San Juan Island, WA, USA, September 6-8, 2006.
18. **E. E. Oren**, C. Tamerler and M. Sarikaya. "Metal recognition of GEPI's via polypod molecular architecture" *Molecular Biomimetics I: Protein Based Materials for Technology and Medicine*, Poster Presentation, San Juan Island, WA, USA, September 6-8, 2006.
19. **E. E. Oren**, R. Samudrala, D. Sahin, S. Dincer, C. Tamerler and M. Sarikaya. "De novo design of inorganic binding polypeptides" *MRS 2005 Fall Meeting, Symposium LL: Combinatorial methods and informatics in materials science*, Poster Presentation, Boston, MA, USA, November 28-December 1, 2005.
20. **E. E. Oren**, R. Samudrala, D. Sahin, N. Gul-Karaguler, C. Tamerler and M. Sarikaya. "Bioinformatics-based de novo design of biocombinatorially pregenerated quartz binding peptides" *Nanoscale Science and Technology Workshop*, Poster Presentation, Seattle, WA, USA, September 20-21, 2005.
21. **E. E. Oren**, R. Samudrala, D. Sahin, C. Tamerler and M. Sarikaya. "Structure prediction of biocombinatorially generated quartz binding peptides" *Nanoscale Science and Technology Workshop*, Poster Presentation, Snowbird, WA, USA, September 20-21, 2005.
22. **E. E. Oren**, R. Samudrala, D. Sahin, S. Dincer, C. Tamerler and 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*, Poster Presentation, Snowbird, UT, USA, April 24-28, 2005.
23. **E. E. Oren**, D. Sahin, C. Tamerler and M. Sarikaya. "Similarity analysis of genetically engineered polypeptides for inorganics" *MRS 2004 Fall Meeting, Symposium Z: Bio-inspired and bio-derived materials and processes*, Poster Presentation, Boston, MA, USA, November 29-December 3, 2004.
24. **E. E. Oren** and 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*, Poster Presentation, Bilbao, Spain, July 8-12, 2002.
25. **E. E. Oren** and 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*, Oral Presentation, Ankara and Konya, Turkey, April 2-6, 2001.
26. **E. E. Oren** and 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*, Oral Presentation, Boston, MA, USA, November 26-30, 2001.

27. **E. E. Oren** and A. C. TAS, "Hydrothermal Synthesis of Pure and Dy:BaTiO₃ Powders at 90°C, Their Sintering Behavior, and Microstructures of Dy:BaTiO₃ Powders Heated on Ti-Strips" *Journal of American Ceramic Society, 100th Annual Meeting & Exposition*, Oral Presentation, Cincinnati, OH, USA. May 3-6, 1998.
28. **E. E. Oren** and A. C. TAS, "Preparation of Piezoelectric Lead Zirconate Titanate (PbZr_{0.52}Ti_{0.48}O₃) Powders by Homogeneous Precipitation and Calcination" *Journal of American Ceramic Society, 100th Annual Meeting & Exposition*, Oral Presentation, Cincinnati, OH, USA, May 3-6, 1998.

TEACHING EXPERIENCE

Seminar Series Organization

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

GEMSEC SRD seminars are biweekly meetings organized and moderated by myself. In these meetings GEMSEC students/postdocs find an opportunity to present their research progress and plans. These discussions help GEMSEC students/postdocs to be aware of the other research going on the GEMSEC and enlarge the number of collaborative work among many GEMSEC research groups.

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

Courses Assisted

- Met.E. 201 Materials Science I
- Met.E. 202 Materials Science II
- Met.E. 502 Diffusion Phenomenon
- Met.E. 503 Mathematical Methods in Materials Science I
- Met.E. 504 Mathematical Methods in Materials Science II
- Met.E. 506 Kinetic of Processes in Materials
- Met.E. 509 Physics of Materials I
- Met.E. 510 Physics of Materials II
- Met.E. 528 Computer Applications in Material Science

As a teaching assistant, I assisted the above listed undergraduate and graduate level courses given by Dr. Ogurtani. My duties included preparing lecture related materials, regulating student discussions, holding recitation sessions, and maintaining attendance and grading records.

Computer Laboratory Classes Developed

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

I was solely responsible for developing course materials and teaching them to the students taking the courses listed above. The computer laboratory classes were conducted 2 hours per week per course. My responsibilities also included student evaluation and grading based on their performances related to the Computer Laboratory section, which would later make the 30% of their final grades.

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.

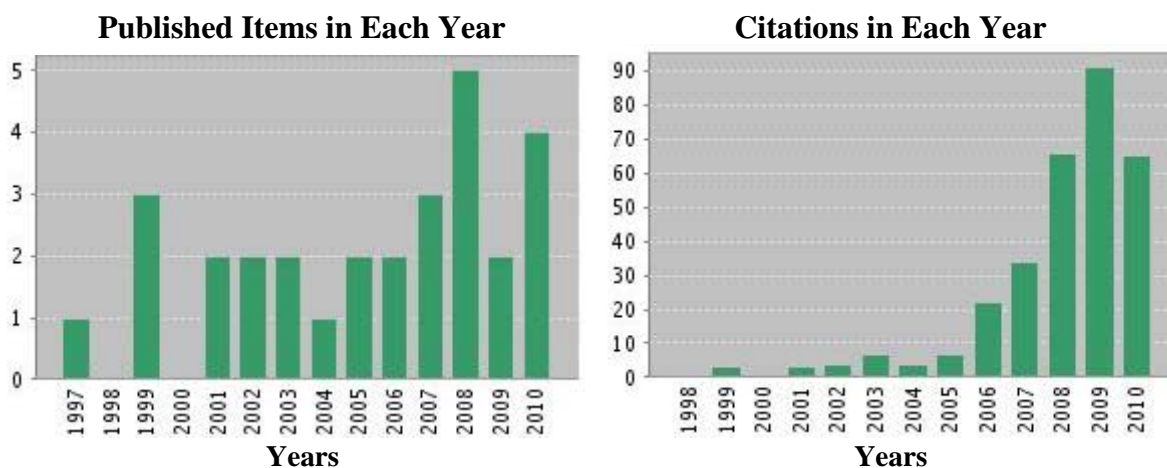
PROFESSIONAL ACTIVITIES

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

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**
 - ✓ ***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.
- **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://depts.washington.edu/gemsec/>
<http://depts.washinton.edu/bionano/>
<http://www.csl.mete.metu.edu/>

References are available upon request.

Citation Report**Author:** (oren ee) (Ersin Emre Oren)**Timespan:** All Years.**Databases:** SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.**Results found:** 29**Sum of the Times Cited:** 316**Average Citations per Item:** 10.90**h-index:** 11

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Advanced Materials	1	8.379
ACS Nano	2	7.493
MRS Bulletin	1	6.330
Small	1	6.171
Bioinformatics	1	4.926
Biomacromolecules	1	4.502
Applied Physics Letters	1	3.554
Langmuir	4	3.898
Journal of Applied Physics	6	2.072
Journal of the American Ceramic Society	1	1.944
International J. of Solids and Structures	1	1.809
Thin Solid Films	1	1.727
Computational Materials Science	1	1.522
Metallurgical and Materials Transactions B	1	0.932
Powder Metallurgy	1	0.451
Biopolymers: Peptide Science	1	NA