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Faculty

Staff

Research

**Graduate Program** 

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**Curricular Materials** 

**Safety Information** 

**Seminars** 

**SummerScience** 

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#### Mihri Ozkan

Professor of Electrical Engineering & Chemistry CFM



Middle East Technical University, Turkey - B.S. in Metallurgical Engineering (1988)
University of Illinois at Urbana Champaign - M.S. in Metallurgical Engineering (1991)
Stanford University - M.S. in Materials Science & Engineering (1994)
University of California, San Diego - Ph.D. in Electrical & Computer Engineering (2001)

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Research Area: Materials Chemistry

**Group Site** 

#### **Biography**

Dr. Mihri Ozkan is currently a Professor in the Department of Electrical Engineering at UC-Riverside with a research focus in nanotechnology and its applications in biology and engineering. Dr. Ozkan is also an active member of the Center for Nanoscale Science and Engineering in UC-Riverside. She received her Ph.D. degree in the Department of Electrical and Computer Engineering at UC-San Diego and her M.S. degree in the Department of Materials Science and Engineering at Stanford University. She has over four years of industrial experience including at Applied Materials, Analog Devices and at IBM Almaden Research Center. Her highly interdisciplinary background including materials science, electrical engineering and bioengineering training supports well her recent multidisciplinary research activities with development of new nanofabrication methods for future electronics and for hybrid organic-inorganic solar devices, and investigations of "smart" nanoparticles for cancer therapeutics. Dr. Ozkan is the recipient of number of awards including Army's Young Investigator Award (2006), Distinguished Engineering Educator of the Year Award by the National Engineers' Council (2006), Regents Faculty Excellence Award (2006, 2004, 2002), Emerging Scholar Award by the American Association of University Women (2005), Invited participant to the National Academy's Keck Future Initiatives Conference (2005), Visionary Science Award by the BioMEMS and Biomedical Nanotechnology Conference (2003), and "Achievement in Technical Ingenuity" Award by the Inland Empire Economic Partnership (2003). She is an active board member and treasurer in the International Society for BioMEMS and Biomedical Nanotechnology. Her editorial activities include the Journal of Sensors and Actuators B and the Journal of Biomedical Microdevices. She is the principal editor of the book titled "Micro-Nano Technologies for Genomics and Proteomics" by Springer. She has more than ninety publications in journal paper, conference proceedings and book chapter format. She also holds more than twenty five patent disclosures and about eight US-patents.

#### Research Area

**Awards** 

Dr. Mihri Ozkan's research interests are the application of nanotechnology both in electronics and bioengineering fields. Her current active research areas can be categorized as:

- Molecular electronics and non-Si based electronics
- Bionanotechnology for cancer treatment and imaging
- Hybrid electronic and optoelectronic devices including photovoltaics.

- 2006 Referee of the Year" by the Journal of Biomedical Microdevices (2007)
- Army's "Young Investigator Award" (2006)
- "Distinguished Engineering Educator of the Year Award" by the National Engineers' Council (2006)
- Regents Faculty Excellence Award (2006)
- Nationwide Award of "2005 Emerging Scholar" by the American Association of University Women
- Participant to the National Academy's Keck Future Initiatives Conference by invitation from the National Academy (2005)

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- Regents Faculty Excellence Award (2004)
- 1 "Frontier Research" by the Virtual Journal of Nanoscale Science and Technology edited by Dr. David Awschalom (2004)
- Invited Speaker at the "National Engineers Week" Feb. (2004)
- Visionary Science Award: BioMEMS and Biomedical Nanotechnology Conference (2003)
- By invitation a US-team member in US-Japan Nanotechnology in Advanced Therapy and Diagnosis Symposium, Yokohama Japan (2003)
- 1 "Achievement in Technical Ingenuity" Award : Inland Empire Economic Partnership (2003)
- "Research Leadership Recognition Award" from CORE21 (2003)
- Travel Award from Association for Lab Automation (2003)
- Regents Faculty Excellence Award, Riverside (2002)
- Academic Senate Faculty Excellence Award, Riverside (2002)
- Invited Research Fellow, Max Planck Institute, Stuttgart, Germany (2002)
- Best Research Poster in Bioengineering: Jacobs School of Engineering, San Diego (2002)
- Grand Research Poster Award: Jacobs School of Engineering, San Diego (2002)
- Who's Who in Science and Engineering (2002, 2003)
- Graduate Student Award: Jacobs School of Engineering, San Diego (2001)
- Jacobs School of Engineering Best Poster Award, San Diego (2001)
- Graduate Student Award: Bio Medical Engineering Society, Seattle, WA (2000)
- Biomaterials Session Graduate Student Novel Research Award: Materials Research Society, Boston (2000)
- Graduate Student Silver Award: Materials Research Society, Boston (Fall 1999)
- DARPA's HOTC and CHIPS centers Fellow, San Diego, (1999-2001)
- Jacobs School of Engineering Best Poster Award, San Diego, (1998)
- University of California Regents Fellow, San Diego, (1997- 1999)
- Stanford University Fellow through Federal Work-Study, Stanford, (1993-94)
- Research Assistantship from University of Illinois at Urbana-Champaign, Urbana, (1990)

#### **Selected Publications**

- B.Shao. LZ. Shi, JM.Nascimento, EL. Botvinick, M.Ozkan, MW.Berns, SC. Esener, "High-throughput sorting and analysis of human sperm with a ring-shaped laser trap", Biomd Microdevices (2007)
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- K. Singh, R. Pandey, X. Wang, R. Lake, C. Ozkan, K. Wang, M. Ozkan, "SWNT-PNA-SWNT Conjugates: Synthesis, Characterization and Modeling," October, Carbon 44 (2006) 1730-1739. Impact factor: 3.331
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- S Chaudhary, J H Kim, and M Ozkan, "Controlled Electron-Beam-Induced Large-Scale Alignment of Carbon Nanotubes at Metal Electrodes", Journal of Nanoelectronics and Optoelectronics, Vol.1, 1-3, (2006) (Published as the Cover Article)
- B Shao, S. Esener, JM Nascimento, MW Berns, EL Botvinick, M.Ozkan, "Size tunable three-dimensional annular laser trap based on axicons", Optics Letters, November 15, (2006) / Vol. 31, No. 22
- NA. Bruque, K. Alam, RR Pandey, R Lake, JP Lewis, X Wang, F Liu, C Ozkan, M. Ozkan, K Wang, "Self-Assembled Carbon Nanotubes for Electronic Circuit and Device Applications", Journal of Nanoelectronics and Optoelectronics, Volume 1, Number 1, April (2006), pp. 74-81(8)
- X. Wang, R. Pandey, K.V. Singh, C. Tsai, R. Lake, M. Ozkan, C.S. Ozkan, "Synthesis and characterization of peptide nucleic acid-platinum complexes," Nanotechnology 17 (2006) 1-7. Impact factor: 3.322
- Y. Bongyoung, R. Hendricks, M. Ozkan, N. Myung, "Three-Dimensional Alumina," Electrochimica Acta 51 (2006) 3543-3550. Impact Factor: 2.341
- N.G. Portney, G. Destito, M. Manchester, M. Ozkan, "Hybrid Assembly of CPMV Viruses and Surface Characteristics of Different Mutants," August, current topics in microbiology and immunology, 29 mp, 2006 (in press) Impact factor: 4.009 (Invited Contribution)
- N.G. Portney, M. Ozkan, "Nano-oncology: Drug Delivery, Imaging, and Sensing" Anal Bioanal Chem (2006) 384: 620-630 Impact Factor: 2.098 (Invited Contribution)
- B. Shao, S. Zlatanovic, M. Ozkan, A. Birkbeck and S. Esener, "Manipulation of microspheres and biological cells with multiple agile VCSEL traps", Sensors and Actuators B 113 (2006) 866-874 Impact Factor: 2.39

- S. Ravindran, C. Tsai, K.V. Singh, S. Andavan G.T., Y. Gao, M. Ozkan, E. Hu, C.S.Ozkan, "Nano-patterned liquid metal electrode for the synthesis of novel prussian blue nanotubes and nanowires," Nanotechnology 17 (2006) 714-718. Impact factor: 3.322
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- M. Yang, S. Prasad, X. Zhang, M. Ozkan, C.S. Ozkan, "Cascaded chemical sensing using a single cell as a sensor," Sensors Letters, 2, (1), pp. 1 - 8, 2004. (Invited Contribution)
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# UCRIVERSIDE











community-based or applied green energy research projects; achieving national recognition as a community-engaged research university engaged in campus projects related to "green energy" and "sustainability"; improving local community relationships through increased responsiveness to requests for partnerships.

My lab's most recent research activities are focused on the development of industrial scale advanced energy storage devices such as batteries and supercapacitors for zero emission vehicles and wearable technologies. My research group's materials portfolio includes 2D Van der Waal materials (graphene, BN, MoS2, WS2), nanoparticles, nanofabrics, nanowires, bioinspired hybrids and porous materials.

I am the recipient of many National Awards including the National Medal for Engineering Science Young Investigator award from the Society of Engineering Science, the Frontiers of Engineering Honor by the National Academy of Engineering, the Distinguished Engineering Educator of the Year Award by the National Engineers Council and the Emerging Scholar Award by the American Association of University Women. My lab has more than two hundred publications, more than fifty patent disclosures and eight US patents. I graduated 60 PhD students serving as their advisor or co-advisor. I

**Department of Electrical and Computer Engineering 436 Winston Chung Hall** University of California, Riverside Riverside, CA 92521 Telephone: 951-827-2900 Facsimile: 951-827-5696

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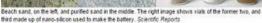


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2014-2015

Wei Wang, Shirui Guo, Ilkeun Lee, Kazi Ahmed, Jiebin Zhong, Zachary Favors, Francisco Zaera, Mihrimah Ozkan, Cengiz S. Ozkan, "Hydrous Ruthenium Oxide Nanoparticles Anchored to Graphene and Carbon Nanotube Hybrid Foam for Supercapacitorsâ€, Scientific Reports 4, Article number: 4452, doi:10.1038/srep04452, 25 March 2014.

Zachary Favors, Wei Wang, Hamed Hosseini Bay, Aaron George, Mihrimah Ozkan, Cengiz S. Ozkan, â€eStable Cycling of SiO2 Nanotubes as High-Performance Anodes for Lithium-Ion Batteriesâ€, Scientific Reports 4, Article number: 4605, doi:10.1038/srep04605, 15 April 2014.

Wei Wang, Isaac Ruiz, Kazi Ahmed, Hamed Hosseini Bay, Aaron S. George, Johnny Wang, John Butler, Mihrimah Ozkan and Cengiz S. Ozkan, â €∞Silicon Decorated Cone Shaped Carbon Nanotube Clusters for Lithium Ion Battery Anodesâ€, Small, April 19, 2014, DOI: 10.1002/smll.201400088.

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Zachary Favors, Wei Wang, Hamed Hosseini Bay, Zafer Mutlu, Kazi Ahmed, Chueh Liu, Mihrimah Ozkan, Cengiz S. Ozkan, â€eScalable Synthesis of Nano-Silicon from Beach Sand for Long Cycle Life Li-ion Batteriesâ€, Scientific Reports 4, Article number: 5623, doi:10.1038/srep05623

Wei Wang, Shirui Guo, Ilkeun Lee, Kazi Ahmed, Jiebin Zhong, Zachary Favors, Francisco Zaera, Mihrimah Ozkan, Cengiz S. Ozkan, "Hydrous Ruthenium Oxide Nanoparticles Anchored to Graphene and Carbon Nanotube Hybrid Foam for Supercapacitorsâ€, Scientific Reports 4, Article number: 4452, doi:10.1038/srep04452

Zachary Favors, Wei Wang, Hamed Hosseini Bay, Aaron George, Mihrimah Ozkan , Cengiz S. Ozkan, "Stable Cycling of SiO2 Nanotubes as High-Performance Anodes for Lithium-Ion Batteries†, Scientific Reports 4, Article number: 4605, doi:10.1038/srep04605

B. Campbell, R. Ionescu, Z. Favors, C. S. Ozkan & M. Ozkan, "Bio-Derived, Binderless, Hierarchically Porous Carbon Anodes for Li-ion Batteries", Scientific Reports 5, Article number: 14575 (2015), doi:10.1038/srep14575

Bell, J., Ye, R., Ahmed, K., Liu, C., Ozkan, M., & Ozkan, C. S. (2015). Free-standing Ni–NiO nanofiber cloth anode for high capacity and high rate Li-ion batteries. Nano Energy. http://dx.doi.org/10.1016/j.nanoen.2015.09.013

2013-2014

Wei Wang, Shirui Guo, Miroslav Penchev, Isaac Ruiz, Krassimir N. Bozhilov, Dong Yan, Mihrimah Ozkan, Cengiz S. Ozkan, "Three dimensional few layer graphene and carbon nanotube foam architectures for high fidelity supercapacitorsâ€, Nano Energy, Volume 2, Issue 2, Pages 294â €'303,http://dx.doi.org/10.1016/j.nanoen.2012.10.001, 2013.

Shirui Guo, Wei Wang, Cengiz S. Ozkan, Mihri Ozkan, "Assembled graphene oxide and single-walled carbon nanotube ink for stable supercapacitorsâ€, Journal of Materials Research, Volume 28, Issue 07, 2013, pp 918-926, DOI: http://dx.doi.org/10.1557/jmr.2012.421, 2013.

Maziar Ghazinejad, Shirui Guo, Wei Wang, Mihrimah Ozkan, Cengiz S. Ozkan, "Synchronous chemical vapor deposition of large-area hybrid graphene‑carbon nanotube architectures†, Journal of Materials Research, Volume 28, Issue 07, 2013, pp 958-968, DOI: http://dx.doi.org/10.1557/jmr.2012.413, 2013.

Wei Wang, Shirui Guo, Mihrimah Ozkan, Cengiz S. Ozkan, "Chrysanthemum like carbon nanofiber foam architectures for supercapacitorsâ€, Journal of Materials Research, Volume 28, Issue 07, pp 912-917, DOI: http://dx.doi.org/10.1557/jmr.2012.412, 2013.

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