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Research Interests

- Functional organic-inorganic nanobiomaterials for biotic-abiotic interface.
- Targeted therapy for brain tumors.
- Neural tissue engineering at the nanoscale.
- Biosensing nanodevices for evaluation of response to therapy.
- Advanced nanobiomaterials and neurochemical sensing for treatment of neurological disorders.

Education

2001 – 2007

University of Michigan

PhD. in Biomedical Engineering, major in Biomaterials

Advisor: Prof. David C. Martin. ***Cumulative GPA: 8.1/8.0***

PhD Thesis: Functional Conducting Polymer Nanomaterials and Bioactive Polymer Nanofibers for Neural Interfaces.

1996 – 1998

Amirkabir University of Technology, Tehran, IRAN

Master's in Biomedical Engineering major in Biomaterials

Cumulative GPA: 3.9/4.0

MS Thesis: Design and Construction of Centrifugally Casting Device for Preparation of Soft Contact Lenses.

1991 – 1995

Amirkabir University of Technology, Tehran, IRAN

Bachelor's in Mechanical Engineering major in Solid Mechanics. Cumulative GPA: 3.8/4.0

Senior project: Preparation of Software for Design of two Types of Passive Vehicle Suspensions :McPherson & Double Wishbone.

Professional Employment

Penn State University

08/2010 – Present Assistant Professor of Bioengineering Department

University of Michigan

01/2010 – 07/2010 Postdoctoral Research Fellow, Department of Plastic Surgery

03/2007 – 12/2009 Postdoctoral Research Fellow, Neural Engineering Lab, Department of Biomedical Engineering

Honors and Awards

- **Winner of the best cover of the year competition among 48 issues, *Advanced Materials*, 2009.**
- **Runner-up of the best cover of the year competition among 24 issues, *Advanced Functional Materials*, 2009.**
- **Cover article *Advanced Materials*, 21 (37), 2009.**
- **Cover article *Advanced Functional Materials*, 19 (4), 2009.**
- **Nominated for Rackham Distinguished Dissertation Award 2007**, The purpose of the awards is to recognize exceptional and unusually interesting work produced by doctoral students in the last phase of their graduate work. Up to eight awards will be made.
- **Post-Doctoral Fellowship Travel Award 2007**, The 3rd International IEEE EMBS Conference on Neural Engineering, Kohala Coast, HA 2007.
- **MRS Graduate Student Silver Award 2007**, one of the most prestigious and competitive awards of MRS for graduate students whose academic achievements and current materials research display a high level of excellence and distinction. Material Research Society Spring Meeting 2007, San Francisco, CA.
- **Distinguished Achievement Graduate Student Award 2007**, College of Engineering, Ann Arbor, MI, 2007. Recipients are chosen by the department and program faculty to recognize academic and personal excellence.
- **Rackham Predoctoral Fellowship 2006**, one of the most prestigious and competitive awards at University of Michigan, 2006 for an outstanding student who is completing his/her dissertation.
- **Outstanding Poster Award 2006**, Macromolecular Science & Engineering Symposium, Ann Arbor, MI, 2006.
- **Advanced Materials Wiley-VCH: The most accessed and popular article in 2006-2007**, Conducting polymer nanotubes for controlled drug release, *Adv. Mater.* 18(4), 2006.
- **Travel Grant Award** from Gordon Research Conference (GRC), Tilton, NH, 2006.
- **Cover article *Advanced Materials*, 18, 4, 2006.**
- **Travel Grant Award** from Neural Prosthesis Workshop, Bethesda, MD, 2005.
- **Best Poster Prize**, UM-NASA Bioscience and Engineering Institute (UMNBEI), Ann Arbor, MI, 2005.
- **Rackham Conference Travel Award**, 2003-2007.
- **Outstanding graduate student**, Amirkabir University of Technology. **Ranked 1st** among of all alumni of Biomedical Engineering Department, Amirkabir University of Technology, Tehran, Iran (out of 50 students), 2001.

- **1st rank** and the highest score in the Ph.D entrance examination of Biomedical Engineering Department, Amirkabir University of Technology, Tehran, Iran. (Out of 80 applicants), 1999
- **2nd rank** graduate student among of all Msc. students Biomedical Engineering Department, Amirkabir University of Technology, Tehran, Iran (out of 35 students).
- **Outstanding undergraduate student**, AmirKabir University of Technology. **Ranked 1st** among of all undergraduate students of Mechanical Engineering Department, Amir Kabir University of Technology, Tehran, Iran (out of 430 students), 1990-1992.

Publications

Journal articles

1. **Abidian M. R.**, Urbancheck M. G., Egeland B. M., Kipke D. R., Cederna P.S., **A hybrid conducting polymer-hydrogel conduit for peripheral nerve regeneration**, submitted.
2. Urbancheck M. G., Wei B., Egeland B. M., **Abidian M. R.**, Kipke D. R., Cederna P.S., **Microscale electrode implantation during nerve repair morphology, electromyography, and recovery of muscle contractile function**, submitted.
3. **Abidian M. R.**, Corey J. M., Kipke D. R., Martin D. C., **Conducting polymer nanotubes improve electrical properties, mechanical adhesion, neural attachment, and neurite outgrowth of neural electrodes.** *Small*, 6 (3), 421-429 (2010) (Impact Factor **6.52** in 2009) [DOI: 10.1002/smll.200901868](https://doi.org/10.1002/smll.200901868)
No. Citations = 5
4. **Abidian M. R.**, Ludwig K, Marzullo T. C., Martin D. C., Kipke D. R., **Interfacing conducting polymer nanotubes with the central nervous system: Chronic neural recording using poly(3,4-ethylenedioxythiophene) nanotubes.** *Advanced Materials*, 21 (37), 3764-3770 (2009). (Impact Factor **8.19** in 2009). [DOI: 10.1002/adma.200900887](https://doi.org/10.1002/adma.200900887)
No. Citations = 11
 - Featured on the [cover page](#).
 - The manuscript was judged to be **very important** and **very urgent**.
 - Highlighted in [ScienceDaily](#): **Step towards brain implants using conducting polymer nanotubes.**
 - Highlighted in [MaterialsViews](#), **Cover Story: Nanotubes on the brain.**
 - Highlighted in [University of Michigan News Service](#), **A step toward better brain implants using conducting polymer nanotubes**
 - Highlighted in [Nanowerk](#), **Conducting polymer nanotubes improve brain implants**
 - Highlighted in [NanoMagazine](#), **Polymer nanotube conductors make better brain implants**
 - Highlighted in **News and Opinions in Nano Today**, *nanotoday*, 2009, 4, 453.
[doi:10.1016/j.nantod.2009.10.004](https://doi.org/10.1016/j.nantod.2009.10.004)
 - Highlighted in **Research News, in Materials Today**, *materialstoday*, 2009, 12,14.
[doi:10.1016/S1369-7021\(09\)70311-6](https://doi.org/10.1016/S1369-7021(09)70311-6)
5. **Abidian M. R.**, Martin D. C., **Multifunctional nanobiomaterials for neural interfaces.** *Advanced Functional Materials*, 19 (4), 573-585 (2009). (Impact Factor **6.81** in 2009). [DOI: 10.1002/adfm.200801473](https://doi.org/10.1002/adfm.200801473)
No. Citation = 21

- Featured on the [cover page](#).
 - The manuscript was judged to be **very important** and **very urgent**.
 - Highlighted in [ScienceDaily](#), Nanotechnology coating could lead to better brain implants to treat diseases.
 - Highlighted in [University of Michigan News Service](#): Nanotech coating could lead to better brain implants to treat diseases
 - Highlighted in [MaterialsViews](#), Neural Interface Nanobiomaterials
 - Highlighted in [Nanowerk](#), Brain implants improved by nanotechnology coatings.
 - Highlighted in [Eurekalert](#), [e!ScienceNews](#), [Institute o Nanotechnology](#), [Nanotechwire](#), [ScientistLive](#), [Bio-Medicine](#), [Nanotechwire](#).
6. **Abidian M. R., Martin D. C., Experimental and theoretical characterization of neural microelectrodes modified with conducting polymer nanotubes.** *Biomaterials*, 29 (9), 1273-1283 (2008). (Impact Factor 6.64 in 2009). [DOI:10.1016/j.biomaterials.2007.11.022](https://doi.org/10.1016/j.biomaterials.2007.11.022)
No. Citation = 22
- Highlighted in **Review** in *Advanced Materials*. Adv. Mater., 2009, 40,3970. [DOI: 10.1002/adma.200801984](https://doi.org/10.1002/adma.200801984)
7. **Abidian M. R., Kim D. H., Martin D. C. Conducting polymer nanotubes for controlled drug release.** *Advanced Materials*, 18 (4), 405-409 (2006), (Impact Factor 8.19 in 2009). [DOI: 10.1002/adma.200501726](https://doi.org/10.1002/adma.200501726)
No. Citation = 127
- Featured on the **cover page**
 - Featured as [The Most Popular and Accessed Article](#) in 2006-2007.
 - Highlighted in [The National Cancer Institute](#): Conducting polymers make on-demand drug-releasing nanotubes.
 - Highlighted in the [FoxNews](#): Nanotubes make remote-control drug delivery possible.
 - Highlighted in [LiveScience](#): Remote controlled drug delivery possible.
 - Highlighted in [Nanowerk](#): Pinpoint, on-demand drug delivery with nanotubes is now possible
 - Highlighted in [Nanotechwire](#): Conducting polymers make on-demand drug-releasing nanotubes.
 - Highlighted in **Letter** in *Nature Materials*, Nat. Mater., 2009, 8, 742. [DOI: 10.1038/nmat2494](https://doi.org/10.1038/nmat2494)
 - Highlighted in **News & Views** in *Nature Materials*: Nat. Mater., 2009, 6, 626. [DOI: 10.1038/nmat1992](https://doi.org/10.1038/nmat1992)
 - Highlighted in **Critical Review** in *Chemical Society Reviews*, Chem. Soc. Rev., 2009, 38, 2397. [DOI: 10.1039/b816681c](https://doi.org/10.1039/b816681c)
 - Highlighted in **Review** in *Advanced Materials*. Adv. Mater., 2009, 40,3970. [DOI: 10.1002/adma.200801984](https://doi.org/10.1002/adma.200801984)
 - Highlighted in **Progress Report** in *Advanced Materials*, Adv. Mater., 2009, 21, 1487. [DOI: 10.1002/adma.200802289](https://doi.org/10.1002/adma.200802289)
 - Highlighted in **Review** in *Advanced Materials*: Adv. Mater., 2007, 19, 3201. [DOI: 10.1002/adma.200700419](https://doi.org/10.1002/adma.200700419)
 - Highlighted in **Review** in *Progress in Polymer Science*, Prog. Polym.Sci., 2007, 32, 876. [DOI: 10.1016/j.progpolymsci.2007.05.012](https://doi.org/10.1016/j.progpolymsci.2007.05.012)
 - Highlighted in **Review** in *Small*. Small, 2009, in press. [DOI: 10.1002/sml.200900445](https://doi.org/10.1002/sml.200900445)

8. Kim D. H, **Abidian M. R.**, Martin D. C., **Conducting polymers grown in hydrogel scaffolds coated on neural prosthetic devices.** *Journal of Biomedical Materials Research*, 71A: 577-585, 2004, (Impact Factor 2.7 in 2009).
No. Citation = 52

Peer-reviewed conference papers

1. Daneshvar E. D., **Abidian M. R.**, Smela E., Kipke D. R., **Mechanical characterization of conducting polymer actuated neural probes under physiological settings**, SPIE Smart Structures/NDE 2010, San Diego, CA, March 2010.
2. **Abidian M. R.**, Daneshvar E. D., Miriani R., Turer D. M., Wright M., Egeland B., Urbanek M., Cederna P., Kipke D. R., **Conductive hydrogel microtubes for peripheral nerve regenerations**, 16th International Conference on Mechanics in Medicine and Biology, Pittsburg, PA, July 2008.
3. Miriani R. M., **Abidian M. R.**, Kipke D. R., **Cytotoxic analysis of the conducting polymer PEDOT using myocytes**, 30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (IEEE-EMBS), Vancouver, British Columbia, Canada, August 2008.
4. **Abidian M.R.**, Marzullo T., Salas L., Yazdan-Shahmorad A., Martin D.C., and Kipke D.R. **In-vivo evaluation of chronically implanted microelectrode arrays with poly (3,4- ethylenedioxythiophene) nanotubes.** The 3rd International IEEE EMBS Conference on Neural Engineering, Kohala Coast, HA, 2007, pp 61-64.
5. Martin D. C., **Abidian M. R.**, Hendricks J. L., Richardson-Burns S., Meier M., Kim D. H., Yang J. **nanostructured conducting polymer coatings for biomedical devices.** *Microscopy and Microanalysis*, Volume 12, Supplement S02, Aug 2006, pp 550-551
6. Kim D. H., **Abidian M. R.**, Martin D. C. **Synthesis and characterization of conducting polymers grown in hydrogels for neural applications**, *MRS 2003 Fall meeting proceedings* F 5.5, Boston MA, 2003

Patents

1. **Abidian M. R.**, Daneshvar E. D., Kipke D. R., *Pivot probe*. Provisionally patent submitted to University of Michigan Technology transfer office.
2. **Abidian M. R.**, Miriani R., Turer D., Martin D. C., Richardson-Burns S., Kipke D. R., Cederna P, *Bioartificial neuromuscular interface devices*. US patent pending.
3. Martin D.C., Hendricks J.L., Richardson-Burns S.M., **Abidian M.R.**, Kim D.H., Povlich L.K., and Meier M.R., *Biologically interfaced electrode Devices*. US patent 20070060815. [BioTectix LLC](#) has been established based on this patent.
4. **Abidian M.R.** and D.C. Martin, *Conducting polymer nanotube Actuators for precisely controlled release of drugs and bioactive molecules*. US Patent 20090292325. This patent was issued to [BioTectix LLC](#).

Book Chapters

1. **Abidian M. R.,** Martin D. C. **Nanostructured conducting polymer biomaterials and their applications in controlled drug delivery.** In: Carpi F., Smela E., editors. Biomedical application of electroactive polymer actuators. John Wiley & Sons, (2008).
2. Kim D. H., **Abidian M. R.** Richradson-Burns S., Povlich S., Spanninga S., Hendricks J., Martin D. C. **Soft, fuzzy, and bioactive conducting polymers for improving the chronic performance of neural prosthetic devices.** In: Reichert W. M., editor. Indwelling neural implants: Strategies for contending with the in vivo environment. CRC Press (2008).

Invited Seminars

- Carnegie Mellon University, Department of Materials Science & Biomedical Engineering (January 2010)
- Pennsylvania State University, Department of Bioengineering (April 2010)
- New Jersey Institute of Technology, Department of Biomedical Engineering (April 2010)

Conference Talks

1. *Multifunctional and Bioactive Nanostructured Conducting Polymer Actuators for On-Demand for Precisely and Targeted Delivery of Drugs and Proteins.* Material Research Society (MRS), Symposium NN: Active Polymers, San Francisco, CA, April 2009.
2. *Functional conducting polymer nanomaterials for neural interface application,* Material Research Society (MRS), Symposium FF: Nanofunctional Materials, Structures, and devices for Biomedical Applications, Boston, MA, December 2008.
3. *Functional bio-artificial neuromuscular implant for peripheral nerve regeneration,* American Society for Peripheral Nerve, January 2009, Maui, HA
4. *Aligned conducting polymer nanotubes for contact guidance of neurite outgrowth and precisely controlled release of neutrophins in nerve regeneration application,* American Society for Peripheral Nerve, January 2009, Maui, HA
5. *Bioactive Nanostructured Materials for Neural Interfaces,* Society for Biomaterials (SFB), Atlanta, GA, September 2008.
6. *Nanostructured conducting polymers for CNS and PNS: In-vitro and In-vivo,* 16th International Conference on Mechanics in Medicine and Biology, Pittsburg, PA, July 2008.
7. *Nanostructured Hybrid Organic Biomaterials for Neural Interfaces.* NSTI Nanotechnology Conference and Trade Show, Boston, MA, June 2008.
8. *Functional Conducting Polymer Nanotube Actuators for Neural Interfaces: In-vitro and In-vivo Evaluations.* Material Research Society (MRS), Symposium BB: Signal Transduction Across the Biology-Technology Interface, San Francisco, CA, March 2008.
9. *Nanostructured conducting polymers and bioactive polymer nanofibers for nerve regeneration, precisely controlled release of drugs and biomolecules, and surface modification of biosensors.* Material Research

Society (MRS), Symposium QQ: Electroactive and Conductive Polymers and Carbon Nanotubes for Biomedical Applications, Boston, MA, November 2007.

10. *Bioactive conducting polymer nanotubes for neurite outgrowth in nerve regeneration applications*. Biomedical Engineering Society (BMES), Los Angeles, CA, 2007
11. *In-vivo evaluation of chronically implanted microelectrode arrays with poly (3,4- ethylenedioxythiophene) nanotubes*. The 3rd International IEEE EMBS Conference on Neural Engineering, Kohala Coast, HA, May 2007.
12. *Aligned conducting polymer nanotubes for the controlled release of neurotrophins and contact guidance of regenerating neurons*. Material Research Society (MRS), Symposium U: Advanced Materials for Neuroprosthetic Interfaces, San Francisco, CA, April 2007.
13. *Highly aligned conducting polymer nanotubes for precisely controlled release of drugs at the electrode-tissue interface of neural prosthetic devices*. Material Research Society (MRS), Symposium CC: Electrobiological Interfaces on Soft Substrates, San Francisco, CA, April 2006.
14. *Incorporation and controlled release of an anti-inflammatory drug using electrospun biodegradable polymers coated with conducting polymers*. Material Research Society (MRS), Symposium M: Developing Nano-Bio Interfaces, San Francisco, CA, April 2005.
15. *Surface modification of microfabricated electrodes by electrochemical deposition of conducting polymers through electrospun nanofibrous biodegradable polymer template*, ME Graduate Student Symposium, University of Michigan, Ann Arbor, MI, 2004.
16. *Antibiotic gentamicin from hydroxyapatite composites*. International Symposium on Biomaterial and Drug Delivery System, Chejo Island, Korea, August 2000.

Peer-reviewed Conference Abstracts and Poster Presentations

1. B. M. Egeland, M. G. Urbanek, **M.R. Abidian**, R. M. Miriani, K. A. Schroeder, D. E. Daneshvar, W. M. Kuzon, Y. Jadchela, D. R. Kipke, P. S. Cederna, Electrophysiology following neural regeneration through conducting polymer lined hydrogel conduit, American Society for Peripheral Nerve, Coca Raton, FL, January 2010.
2. B. M. Egeland, M. G. Urbanek, **M.R. Abidian**, R. M. Miriani, W. M. Kuzon, Y. D. C. Martin, D. R. Kipke, P. S. Cederna, Electrical performance of bio-engineered non-metallic nerve interface. American Society for Peripheral Nerve, Coca Raton, FL, January 2010.
3. B. Wei, M. G. Urbanek, K. M. Schroeder, B. M. Egeland, **M. R. Abidian**, R. M. Miriani, K. A. Ewing, D. E. Daneshvar, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Sensory function following nerve regeneration through conductive conduits*, American Society of Plastic Surgeons, Seattle, WA, October 2009.
4. K. A. Schroeder, M. G. Urbanek, B. M. Egeland, K. A. Ewing, **M. R. Abidian**, D. E. Daneshvar, R. M. Miriani, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Biosynthetic poly(3,4-ethylenedioxythiophene) (PEDOT) PNS*

interfaces can deliver afferent SNAPs with high efficiency, Annual Research Conference, Ann Arbor, MI, March 2009. (The best poster award)

5. E. D. Daneshvar, **M. R. Abidian**, D. R. Kipke, *Conducting polymer actuated neural pivot probe*, Material Research Society (MRS), Symposium NN: Active Polymers, San Francisco, CA, April 2009.
6. K. A. Schroeder, M. G. Urbancheck, B. M. Egeland, K. A. Ewing, **M. R. Abidian**, D. E. Daneshvar, R. M. Miriani, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Sensory protection recovery follows nerve regeneration through an electrically conducting nerve graft*, The Plastic Surgery Research Council (PSRC), University of Pittsburgh, Pittsburgh, PA, May 2009.
7. C. M. Frost, M. G. Urbancheck, B. M. Egeland, L. M. Larkin, **M. R. Abidian**, D. E. Daneshvar, R. M. Miriani, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Development of a biosynthetic living interface with severed peripheral nerve*. The Plastic Surgery Research Council (PSRC), University of Pittsburgh, Pittsburgh, PA, May 2009. (Selected for the best paper)
8. B. M. Egeland, M. G. Urbancheck, **M.R. Abidian**, R. M. Miriani, K. M. Schroder, D. E. Daneshvar, K. A. Ewing, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Electrophysiology following neural regeneration through conducting polymer lined hydrogel conduits*, The Plastic Surgery Research Council (PSRC), University of Pittsburgh, Pittsburgh, PA, May 2009.
9. B. M. Egeland, M. G. Urbancheck, **M.R. Abidian**, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *A tissue-based bioelectrical interface had reduced impedance compared to copper wire and nerve*, The Plastic Surgery Research Council (PSRC), University of Pittsburgh, Pittsburgh, PA, May 2009.
10. Y. Jadchela, M. G. Urbancheck, **M.R. Abidian**, B. M. Egeland, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Nerve regeneration through an electrically conducting polymer lined nerve graft*, The Plastic Surgery Research Council (PSRC), University of Pittsburgh, Pittsburgh, PA, May 2009.
11. M. G. Urbancheck, **M. R. Abidian**, K. A. Ewing, K. A. Schroeder, B. M. Egeland, D. E. Daneshvar, R. M. Miriani, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Sensory protection recovery follows nerve regeneration through an electrically conducting nerve graft*, Plastic and Reconstructive Surgery, June 2009 Supplement, Vol. 123, Number 6, P 40.
12. B. M. Egeland, M. G. Urbancheck, **M.R. Abidian**, W. M. Kuzon, P. S. Cederna, *A tissue based bioelectrical interface has reduced impedance compared to copper wire and nerve*, Plastic and Reconstructive Surgery, June 2009 Supplement, Vol. 123, Number 6, P 26.
13. Y. Jadchela, M. G. Urbancheck, **M.R. Abidian**, B. M. Egeland, W. M. Kuzon, D. R. Kipke, P. S. Cederna, *Nerve regeneration through an electrically conducting polymer nerve graft PEDOT*, American Society of Plastic Surgeons, Seattle, WA, October 2009.
14. **M. R. Abidian**, D. C. Martin, D. R. Kipke, *Aligned Conducting Polymer Nanotubes for Precisely Controlled Release of Drugs and Neurotrophins at the Electrode-Tissue Interface of Neural Prosthetic Devices*, Gordon Research Conference, Nanostructure Fabrication, Tilton, NH, 2008.
15. **M. R. Abidian** et al., *Bioartificial neuromuscular implants*. Society for Neuroscience (SFN) meeting 2008, Washington, DC.

16. J. Seymour, N. Langhals, K. Ludwig, Y. Elkasabi, **M. R. Abidian**, J. Lahann, D. Kipke; *Sub-cellular edge electrode increases viewing angle and decrease arbor damage*. Society for Neuroscience (SFN) meeting 2008, Washington, DC.
17. **M. R. Abidian**, Daneshvar E. D., Miriani R., Turer D. M., Wright M., Egeland B., Urbanchek M., Cederna P., Kipke D. R., *Bioactive and Conductive Nerve Conduits for Peripheral Nerve Regenerations*, 38th Annual Neural Interfaces Conference, Cleveland, OH, June 2008.
18. **M. R. Abidian**, E. D. Daneshvar, D. C. Martin, D. R. Kipke, *Nanostructured Hybrid Conducting Polymer Biomaterials for Neural Interfaces*. Biomedical Engineering Society (BMES), St. Louis, MO, 2008.
19. **M. R. Abidian**, J. M. Corey, D. C. Martin, and D. R. Kipke *Aligned conducting polymer nanotubes for precisely controlled release of drugs and neurotrophins at the electrode-tissue interfaces of neural prosthetic devices*. Society for Neuroscience (SFN) meeting 2007, San Diego, CA.
20. D. C. Martin, L. Povlich, **M. R. Abidian**, J. Hendricks, S. Spanninga, R. G. Axelsson, J. C. Cho, and J. Kim, *Biologically-functionalized and biologically-driven conducting polymers for interfacing biomedical devices with living tissue*. Material Research Society (MRS) Spring Meeting, Symposium U: Advanced Materials for Neuroprosthetic Interfaces, San Francisco, CA, April 2007
21. R.G. Axelsson, **M.R. Abidian**, P. Keshtkar, and D.C. Martin, *Mechanisms of mass transport during actuation of poly(3, 4-ethylenedioxythiophene) (PEDOT) using a quartz crystal microbalance*. Material Research Society (MRS) Spring Meeting 2007, Symposium U: Advanced Materials for Neuroprosthetic Interfaces, San Francisco, CA, 2007.
22. D. C. Martin, L. Povlich, **M.R. Abidian**, J. Hendricks, S. Spanninga, R. Axelsson, J. Cho, J. Kim, *Biologically-Functionalized and Biologically-Derived Conducting Polymers for Interfacing Biomedical Devices with Living Tissue*, MRS 2007
23. **M.R. Abidian**, R.G Axelsson, and D.C. Martin, *Aligned conducting polymer nanotubes for the controlled release of neurotrophins and contact guidance of regenerating neurons*. 30th Annual Macromolecular Science & Engineering Center Symposium, Ann Arbor, MI, 2006.
24. **M.R. Abidian**, R.G Axelsson, and D.C. Martin, *Aligned conducting polymer nanotubes for neurite outgrowth guidance and controlled delivery of neurotrophic factors*. Biomedical Engineering Society (BMES) Annual Fall Meeting, Chicago, IL, 2006.
25. D. C. Martin, J. Hendricks, **M. R. Abidian**, Meier M. M. Yong, and S. Richardson-Burns. *Direct Integration of Biomedical Devices with Living Tissue by the In-Situ Electrochemical Polymerization of Conducting Polymers*, Materials Research Society (MRS) Spring Meeting, Symposium CC: Electrobiological Interfaces on Soft Substrates, San Francisco, CA, April 2006.
26. S. Richardson-Burns, **M. R. Abidian**, D. H. Kim, J. Hendricks, , and D. C. Martin, *Generation of a Functional Biointegrated Electrode by Polymerization of Conductive Polymer Networks Within Brain Tissue*, Material Research Society (MRS) Spring Meeting, Symposium CC: Electrobiological Interfaces on Soft Substrates, San Francisco, CA 2006.
27. **M.R. Abidian**, and D.C. Martin, *Highly aligned and random conducting polymer nanotubes for precisely controlled release of drug and biomolecules for biomedical applications*, Gordon Research Conference, Nanostructure Fabrication, Tilton, NH, 2006.

28. D. C. Martin, D. H. Kim, **M. R. Abidian**, S. Richardson-Burns, J. Hendricks, C. Sequerah, and M. Meier, Nanostructured polymer drug-delivery coatings for microfabricated neural prosthetics, Material Research Society (MRS), Symposium K: Engineering Biointerfaces via Cell-Interactive Materials, Boston, MA, November 2005.
29. **M.R. Abidian** and D.C. Martin, *Incorporation and controlled release of an anti-inflammatory drug using conducting polymer nanotubes*, Biomedical Engineering Society (BMES) Annual Fall Meeting, Baltimore, MD, 2005.
30. **M.R. Abidian** and D.C. Martin, *Conducting Polymer nanotubes for controlled drug delivery applications*, 29th Annual Macromolecular Science & Engineering Center Symposium, Ann Arbor, MI, 2005.
31. **M.R. Abidian** and D.C. Martin, *Controlled release of an anti-inflammatory drug using conducting polymer nanotubes for neural prosthetic applications*, Neural Prostheses Workshop, Bethesda, MA, 2005.
32. **M.R. Abidian** and D.C. Martin, *Controlled drug release from poly (3,4 ethylenedioxythiophene) nanotubes*, NASA Symposium, Ann Arbor, MI 2005.
33. **M.R. Abidian** and D.C. Martin, *Nanotubular structured conducting polymers for surface modification of neural microelectrode arrayes*, Neural Prostheses Workshop, Bethesda, MA, 2004.
34. **M.R. Abidian** and D.C. Martin, *Nanotubular structured conducting polymers for surface modification of neural microelectrode arrayes*, 28th Annual Macromolecular Science & Engineering Center Symposium, 2004.
35. **M.R. Abidian**, D.Y. Lin, and D.C. Martin, *Surface modification of microfabricated neural electrodes by electrochemical deposition of conducting polymers through electrospun nanofibrous biodegradable polymer templates*, 87th Canadian Chemistry Conference, London, Ontario, Canada, 2004.
36. **M.R. Abidian**, D.Y. Lin, D.H. Kim, and D.C. Martin, *Surface modification of neural prosthetic devices by electrochemical deposition of conducting polymers and nanofibers*. Material Research Society (MRS), Symposium F: Biomaterials for Tissue Engineering, Boston, MA, 2003.
37. **M.R. Abidian**, D.Y. Lin, and D.C. Martin, *Electrospinning of nanohydrogel fibers for biomedical applications*, 27th Annual Macromolecular Science & Engineering Center Symposium, 2003.
38. D.H. Kim, **M.R. Abidian**, and D.C. Martin, *Electrochemically synthesized conducting polymers in hydrogel coatings on Si-based neural prostheses*. 33rd Neural Prosthesis Workshop, Bethesda, MA, 2002.
39. D. C. Martin, **M. R. Abidian**, D. H. Kim, D. Lin, J. Yang, and X. Cui, *Fuzzy polymer coatings for microfabricated neural prosthetic devices*. Material Research Society (MRS), Symposium B: Polymer/Metal Interfaces-Fundamental, Properties, and Applications, Boston, MA, December 2002
40. **M.R. Abidian** and Moztarzadeh, *Micro-encapsulation of ciprofloxacin drug delivery system from microsphere of hydroxyapatite*. Chejo Island, Korea, August 2000.

Teaching Experience

2003 – Present Research Mentor for undergraduate and graduate students,

	Biomedical Engineering, University of Michigan
2000 - 2001	Instructor for Introduction to Biomedical Engineering (Graduate level) , Biomedical Engineering, Amirkabir University of Technology
1991 - 2001	Teaching assistant for Statics, Vibrations, and Strength of Materials , Mechanical Engineering, Amirkabir University of Technology
1991 - 1996	Teaching assistant for Electrical Engineering Fundamentals , Electrical Engineering, Amirkabir University of Technology

Guest class lecturer:

2009	BIOMEDE 599: Neural Engineering, Instructor: Daryl Kipke, (1 lecture)
2009	BIMEDE 584: Tissue Engineering, Instructor: Mohammad El Sayed (2 lectures)
2008	BIOMEDE 584: Tissue Engineering, Instructor: Mohamed El Sayed (1 lecture)
2007	BIOMEDE 599: Neural Engineering, Instructor: Daryl Kipke (1 lecture)

Mentorship Experience

Graduate students:

Rickard G. Axelsson (visiting student from Linkopings University, Sweden 08/2006-01/2007),
Pattama Taepaiboon (visiting student from Chulalongkorn University, Thailand 01/2007-08/2007)
Luis G. Salas, David Turer, Eugin Danesvar (Neural Engineering Lab, University of Michigan (04/2007-present))

Undergraduate students (undergraduate research opportunity program):

Sakib Elahi (2002-2004), Michael Pollina (2002-2003), Wynn Koehler (2002-2004), Sarah Polletta (2003-2004), Matt Meier (2003-2005), Peter Keshtkar (2005).

Professional Roles

Reviewer:

- *Advanced Materials* (Wiley-VCH)
- *Analytical Chemistry* (ACS Publications)
- *Small* (Wiley-VCH)
- *Biomaterials* (Elsevier)
- *Macromolecular Bioscience* (Wiley-VCH)
- *ACS Nano* (ACS Publications)
- *Journal of Neuroscience Methods* (Elsevier)
- *Neural Engineering* (Institute of Physics)
- *Macromolecular Bioscience* (Wiley-VCH)
- *Electrochemistry Communication* (Elsevier)
- *Macromolecular Chemistry & Physics* (Wiley-VCH)
- *Journal of Royal Society Interface*

- *Journal of Applied Polymer Science*
- *Biomedical Materials* (Institute of Physics)
- *Environmental Science and Technology* (ACS Publications)
- *Advanced Engineering Materials* (Wiley-VCH)
- *Macromolecules* (ACS Publications)
- *Biological and Medical Physics, Biomedical Engineering* (Springer)
- *The Engineering in Medicine and Biology* (IEEE)

Conference session judge:

- 2008 Engineering Graduate Symposium: Biodevices and Biophysics, University of Michigan
- 2007 Engineering Graduate Symposium: Microfluidics and Devices for Biological Applications, University of Michigan

Industrial Professional Experience

- 1998 ~ 2001 **Kalaye Sanati Iran Co. LTD**, Tehran, Iran.
Training support manager and application engineer for Coordinate Measuring Machine (CMMs) from LK and Renishaw Company, Computer Aided Design & Computer Aided Manufacturing (CAD/CAM) softwares and Laser Interferometer Systems from Renishaw Company.
- 1996 ~ 1998 **Motlagh Metal Forming Machine Manufacturing Co. LTD**, Tehran, Iran.
Senior research engineer, design of roll forming machine, bending machine.
- 1995 ~ 1995 **Technical Intern, SAIPA Automotive Industries Research and Innovation Center (AIRIC) Inc.**, Tehran, Iran.
Suspension systems and Chassis systems of car body
- 1994 ~ 1994 **Technical Intern, SAIPA Automotive Industries Research and Innovation Center (AIRIC) Inc.**, Tehran, Iran.
Suspension systems and Chassis systems of car body

Membership in Scientific Organization

- Biomedical Engineering Society (BMES)
- Material Research Society (MRS)
- Society for Neuroscience (SFN)
- Society for Biomaterials (SFB)
- IEEE
- IEEE Engineering in Medicine and Biology Society (IEEE EMBS)