

Debjyoti Banerjee

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(a) PROFESSIONAL PREPARATION

Indian Institute of Technology (I.I.T.)	Mechanical Engineering	B.S.	1992
University of Mississippi	Engineering Science	M.S.	1995
University of California, Los Angeles (UCLA)	Mechanical Engineering	M.S.	1998
University of California, Los Angeles (UCLA)	Mechanical Engineering	Ph.D.	1999

(b) APPOINTMENTS

Assistant Professor	Texas A&M University, TX	01/2005 - present
Adjunct Professor	Santa Clara University, CA	Spring, 2004
<u>Manager</u> , Advanced Research	Applied Biosystems, CA	02/2004 – 11/2004
Microfluidics Engineer	NanoInk Inc., CA	10/2002 – 02/2004
Senior Fluidics Research Scientist	Ciphergen Biosystems, CA	04/2002 – 10/2002
Senior Engineer	Coventor Inc., CA	10/1999 – 01/2002
Graduate Assistant	University of California (UCLA)	06/1995 – 09/1999
Graduate Assistant	University of Mississippi	07/1993 – 06/1995
Senior Officer (Energy & Economy)	TISCO, India	09/1992 – 06/1993

HONORS AND AWARDS

- “2005 New Investigator Award”, Texas Space Grants Consortium.
- “2001 Best Journal Paper Award” by the ASME Heat Transfer Division for paper in the *Journal of Heat Transfer*.
- Invited to four national honor societies (1994): Phi Kappa Phi (Scientific Research), Sigma Xi (Academic Excellence), Gamma Beta Phi (Social Service), Tau Beta Pi (Engineering).
- "1992 Best Mechanical Engineering Student Award" (*Endowment*), awarded at the graduation convocation, Indian Institute of Technology (I.I.T., Kharagpur).
- J.C. Bose National Science Talent Search Scholar, Government of India (1988).

(c) CHAPTER IN BOOKS

“Dip pen technologies for bio-molecular devices”. Book: “*Volume I: Biological and Biomedical Nanotechnology*”, Editor: A.P. Lee, Publisher: Kluwer, (2005).

(c) PUBLICATIONS (total publications: 24, total patent applications: 7)

1. “Optimization of microfluidic ink-delivery apparatus for Dip Pen Nanolithography™”, D. Banerjee, N.A. Amro, and Joe Fragala, *Journal of Microlithography, Microfabrication and Microsystems*, (“*JM³*”)- *SPIE*, April, 2005, vol. 4, pp. 023014-023021
2. Rosner, B., Duenas, T., Banerjee, D., Shile, R., and Amro, N.A., “Active probes and microfluidic ink delivery for dip-pen nanolithography”, *SPIE Proceedings to the conference 'Microelectronics, MEMS and Nanotechnology*, Perth, Australia, Dec. 9-12, (2003).
3. Rosner, B., Duenas, T., Banerjee, D., Shile, R., and Amro, N.A., “Active Probes and microfluidic ink delivery for Dip Pen Nanolithography™”, *Proceedings of the American Chemical Society (ACS) National Meeting and Symposium on “Nanoscience and Nanotechnology”*, Anaheim, CA, (2004).
4. Banerjee, D., Amro, N.A., Fragala, J., “Optimization of microfluidic ink-delivery apparatus for Dip Pen Nanolithography™”, D. Banerjee, N.A. Amro, and Joe Fragala, *Proceedings of the SPIE (Vol. 5345) Microfluidics, BioMEMS and Medical Microsystems II (Photonics West 2004)*, San Jose, CA,.
5. Banerjee, D., Shile, S., Duenas, T., Fragala, J., “Planar capillary pumped ink delivery apparatus for Dip Pen Nanolithography™”, D. Banerjee, *Proceedings of the Micro Total Analysis Systems Conference (*μTAS 2003*)*, Squaw Valley, CA, Oct. 5-9, 2003.

6. **Banerjee, D.**, “Next Generation Microfluidic Ink Delivery Systems for Dip Pen Nanolithography applications in Biotechnology”, ASME Biomedicine Miniaturization, Irvine, CA, April, 2005.

(c) PATENT APPLICATIONS (Total 8):

1. Applied Biosystems (6 total): (a) “A Fluid Processing Device” (filed: 06/15/04) “Flow Modulator Device”- 3 patent applications (filed: 12/04), Electrowetting Dispensing Devices and Related methods (filed 10/26/2005).
2. NanoInk Inc.(2 total): “Ink delivery to nano-lithographic probe systems”,(filed: 10/03, 11/03).

SCIENTIFIC AND PROFESSIONAL SOCIETY MEMBERSHIPS

American Society of Mechanical Engineers (ASME) – Member

(d) Synergistic Activities:

- As the only Microfluidics Engineer at NanoInk, the PI in a singular capacity developed a microfluidics system (called Inkwells™) from concept to commercial product in 6 months. Inkwells are used for biotechnology applications of Dip Pen Nanolithography. Also, the PI participated in the design development of Active™ Pens at NanoInk.
- **Manager**, Advanced Research & Technology (ART) at Applied Biosystems. Managed a *group of ten engineers and scientists* (6 Ph.D.) in the Fluidics & Device Engineering (FDE) Group for developing portable pathogen detectors for bio-security applications. Submitted 5 patent applications on microfluidic devices for oligosynthesis and portable devices on pathogen genomic detection for bio-security (“Flow Modulator Device”). Managed submission of 25 invention disclosures. Managed sponsored research at Stanford University Nanofabrication Facility (SNF), UC Berkeley Sensors & Actuators Center (BSAC) and Claremont University.
- US-Mexico Workshop on Nanotechnology, Feb. 2005. Strategic Partnership for Research in Nanotechnology (SPRING), Workshop Presenter. Topic: “Next Generation Microfluidic Devices for Dip Pen Nanolithography (DPN)”. Feb. 16-19, 2005, Guanajuato, Mexico.
- Presented weekly science lectures at Children Ninos Bilingual Education (CNBE) to pre-school students, educators and parents of students. Topics: “Fun with Bubbles” and “Fun with Fractals”.

PROFESSIONAL SERVICE:

NSF-MRSEC Program: Grant reviewer for nanotechnology and microfluidics proposals (2004).

Reviewer:TOTAL: 7 (2005-)

1. ASME Journal of Heat Transfer: 2005 -: Number of papers reviewed: 2
2. IEEE Transaction on CAD (IEEE-TCAD): 2005 - : Number of papers reviewed: 2
3. IEEE Sensors Journal: 2005: Number of papers reviewed: 1
4. ASME Journal of Fluids Engineering : 2005 - : Number of papers reviewed: 2

(e) COLLABORATORS & OTHER AFFILIATIONS

Collaborators and Co-Editors: Dr. N.K. Anand (Asst. Dean, College of Engineering, Texas A&M), Prof. Ray Baughman (Director, NanoTech Instt., University of Texas, Dallas); Dr. P. Daripa (Assoc. Professor, Mathematics Department, Texas A&M), A. Frazer, (Director, CNBE), J. Fragala (Vice President, NanoInk Inc.); C.D. Patel (Distinguished Technologist, Hewlett-Packard Labs.), J. Rinehart (Space Engr. Instt., Texas A&M); N. Sarker (Prairie View A&M University); Dr. S.K. Sinha (Assistant Professor, Physics Department, University of New Haven, CT), Dr. M. Tirumala (Principal Engineer, Intel); Dr. M. Zhang (NanoTech Institute, University of Texas, Dallas).

Graduate Advisor: Dr. V.K. Dhir (Dean, School of Engineering, UCLA).

Thesis Advisor: Currently advising 2 Ph.D. (Hee Seok Ahn, Ashwin Balasubraniam), 3 M.S. (Juan Alberto Rivas-Cordona, Vijay Satyamurthi, Nipun Sinha), and 2 Undergraduate student researchers: Randy Williams (Fall, 2005) and Ryan H. Dobbs (USRG, Summer 2005).