

Marya Lieberman

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Research area:

Surface and materials chemistry with applications to molecular electronics

Professional Preparation and Appointments

Massachusetts Institute of Technology, Cambridge, MA	Chemistry	BS 1989
University of Washington, Seattle, WA	Chemistry	Ph.D. 1994
California Institute of Technology, Pasadena, CA.	Chemistry	1994-1996
Assistant Professor, University of Notre Dame, Notre Dame, Indiana.		1996-2002
Associate Professor, University of Notre Dame, Notre Dame, Indiana.		2002-present

Five Relevant Publications (past 5 years)

- "Deposition of DNA rafts on cationic SAMs on Si[100]", K. Sarveswaran, W. Hu, P. Huber, G. Bernstein, and M. Lieberman, *Langmuir*, **2006**, *22*, 11279-11283
- "High Resolution Electron Beam Lithography and DNA Nano-patterning for Molecular QCA," W. Hu, K. Sarveswaran, M. Lieberman, and G. H. Bernstein, *IEEE Trans. Nano.*, **2005**, *4*, 312-316.
- "Sub-10 nm electron beam lithography using cold development of poly(methylmethacrylate)," W. C. Hu, K. Sarveswaran, M. Lieberman, G. Bernstein. *J. Vac. Sci. Technol. B*, **2004**, *22*, 1711-1716.
- "Nanometer scale rafts built from DNA tiles," K. Sarveswaran, P. Huber, M. Lieberman, C. Russo, and C. S. Lent; *Proceedings of the 2003 3rd IEEE Conference on Nanotechnology*, **2003**, 417-20 vol.2
- "Molecular patterning through high-resolution polymethylmethacrylate masks," Q. Hang, Y. Wang, M. Lieberman, and G. Bernstein; *A.P.L.*, **2002** *80*, 4220-4222.

Five Other Publications (past 5 years)

- Molecules as components of electronic devices, ACS Symposium Series monograph #844, M. Lieberman, Editor, Oxford University Press **2003**.
- "Formation, Characterization and Sub-50 nm Patterning of Organosilane Monolayers with Embedded Disulfide Bonds," X. Wang, W. Hu, G. Bernstein, R. Rajogopal, G. Snider, M. Lieberman, *Langmuir*, **2003**, *19* (23) 9748-9758
- "Growth of Ultra-smooth Octadecyltrichlorosilane Self-assembled Monolayers on SiO₂," Y. Wang and M. Lieberman, *Langmuir*, **2003**, *19*, 1159-1167
- "XPS study of self-assembly of ruthenium dimers [(acac)₂Ru]₂bptz]^{0,+1} on hydrophobic and hydrophilic SAMs," B. Varughese and M. Lieberman, *Langmuir*, **2002**, *18*, 7964-7970.
- "XPS and SERS Study of Silicon Phthalocyanine Monolayers: Umbrella vs. Octopus Design Strategies for Formation of Oriented Monolayers," Z. Li, M. Lieberman, and W. Hill, *Langmuir* **2001**, *17*, 4887-4894.

Synergistic activities

- 1) ACS Colloid and Surface Chemistry Division symposium organizer (2001—Molecules as Components of Electronic Devices, 3 day symposium at San Diego spring ACS meeting; 2005—Ultra-high resolution lithography, 3 day symposium at Atlanta spring ACS meeting) FNANO 2006, 2007 track organizer on “Top-down meets bottom-up”
- 2) REU program: Chemistry REU leadership group 2004-2008, lead PI for REU programs in nanoscience/nano-bio in 2000-2002 and 2004-2006, participants include 81 undergrads, 10 local high school teachers, and 12 local high school students.
- 3) teaching interests include general chemistry, analytical, spectroscopy, organic, and inorganic.
- 4) reviewer for Langmuir, JVST B, JACS, J. Chem. Ed., IEEE Trans. Nano., J. Phys. Chem., Science Foundation of Ireland, Science Foundation of South Africa, ONR, NSF CAREER program, NSF Graduate Fellowship program, NSF NIRT program.

Collaborations and co-workers

Graduate students	Current Affiliation	Postdoctoral fellows	Current Affiliation
Dr. Zhiyong Li (PhD)	Hewlett-Packard	Dr. Jianhong Pei	Nova Biomedical, MA
Dr. Yuliang Wang (PhD)	SeashellTech	Dr. Sudha Chellamma	Adj. Professor, Truman College, IL
Mr. Xuejun Wang (PhD)	Research Asst. Prof, UND Dept. of Chemical and Biomolecular Engineering	Dr. Bindhu Varughese	Adj. Professor, St. Xavier's College, Chicago, IL
Ms. Amy Vickers (MS)	Ft. Worth Comm. College	Dr. V. Sarveswaran	Notre Dame
			Environmental Molecule Science Institute
Mr. Peng Sun (MS)	Northwestern, PhD program	Dr. K. Sarveswaran	Research Asst. Prof, UND Dept. of Chemistry
Ms. Bo Gao	Notre Dame	Dr. Wen Sheng Yang	PRC
Mr. Wei He	Notre Dame	Dr. Roger Nassar	Rohm & Haas
Ms. Christina Arisio	Notre Dame	Dr. Sundarghopal Ghosh	IIT
Ms. Kyoung Nan Kim	Notre Dame	Dr. David Kreller	Notre Dame
Collaborators	Current Affiliation	Collaborators	Current Affiliation
Prof. Alex Wei	Purdue	Prof. Craig Lent	Notre Dame
Prof. Elias Greenbaum and Dr. Ida Lee	ORNL and U. Tennessee	Prof. Paul Huber	Notre Dame
Prof. Grace Xing	Notre Dame	Prof. Gary Bernstein	Notre Dame
Prof. Debdeep Jenna	Notre Dame	Prof. Greg Snider	Notre Dame
Prof. Michael Niemier	GaTech	Prof. Sharon Hu	Notre Dame
Dr. Stefan Vajda	Argonne		
Prof. Andrzej Budkowski	Jagellonian University, Poland		
Doctoral Advisor	Current Affiliation	Postdoc Advisor	Current Affiliation
Prof. Tomikazu Sasaki	U. Washington, Seattle	Prof. Nathan Lewis	Caltech