

DAVID H. GRACIAS, PH.D. CURRICULUM VITAE

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I. EDUCATION

1994-99 Ph.D., Physical Chemistry, UC Berkeley and Materials Science Division, Lawrence Berkeley National Laboratory; Advisor: G. Somorjai

1989-94 5 year Integrated M.S., Indian Institute of Technology (IIT) Kharagpur, India.

II. PROFESSIONAL EXPERIENCE

2009-present: Associate Professor, Chemical and Biomolecular Engineering (ChemBE), Johns Hopkins University (JHU).

2003-09: Assistant Professor, ChemBE, JHU.

2001-03: Senior Engineer, Process Integration, R&D, Intel Corporation, Hillsboro, Oregon.

1999-01: Postdoctoral Fellow, Chemistry and Chemical Biology, Harvard; Advisor: G. Whitesides

III. SIGNIFICANT AWARDS

2010 Humboldt Fellowship for Experienced Researchers

2008 National Institutes of Health (NIH) Director's New Innovator Award

2008 DuPont Young Professor Award

2007 Outstanding Young Engineer Award (Allan Davis Medal) from the Maryland Academy of Sciences

2007 Maryland State Official Citation for Supporting Gifted K-12 Education (Senator Ulysses Currie)

2006 Camille Dreyfus Teacher-Scholar Award

2006 Beckman Young Investigator Award

2005 National Science Foundation Career Award

IV. SIGNIFICANT AWARDS TO STUDENTS RECEIVED WHILE BEING ADVISED BY D. GRACIAS

2007 Materials Research Society (MRS): Graduate Student Gold Award (Tim Leong)

2007 Intel Science Talent Search 2007: National Winner (Emma Call)

V. PUBLICATIONS

SELECTED PAPERS (out of 60 journal papers, 12 peer reviewed conference proceedings, and 5 book chapters)

- J. S. Randhawa, M. D. Keung, P. Tyagi and D. H. Gracias, *Reversible actuation of microstructures by surface chemical modification of thin film bilayers*, *Advanced Materials* 22, 3, 407-410 (2010). [Featured on the Cover]
- M. Jamal, N. Bassik, J.-H. Cho, C. L. Randall and D. H. Gracias, *Directed growth of fibroblasts into three dimensional micropatterned geometries via self-assembling scaffolds*, *Biomaterials* 31, 7, 1683-1690 (2010).
- J. H. Cho and D. H. Gracias, *Self-assembly of lithographically patterned nanoparticles*, *Nanoletters* 9, 12, 4049-4052 (2009).
- N. Bassik, G. Stern and D. H. Gracias, *Microassembly based on Hands Free Origami with Bidirectional Curvature*, *Applied Physics Letters* 95, 9, 091901/1-3 (2009) [Featured on the Cover].
- T. G. Leong, C. L. Randall, B. R. Benson, N. Bassik, G. M. Stern and D. H. Gracias, *Tetherless Thermo-biochemically Actuated Microgrippers*, *Proc. Nat. Acad. Sci. (PNAS)* 106:703-708 (2009)
- A. Azam, T. G. Leong, A. M. Zarafshar and D.H. Gracias, *Compactness Determines the Success of Cube and Octahedron Self-assembly*, *PLoS ONE* (2009) 4 (2): e4451 (2009).
- T. G. Leong, C. L. Randall, B. R. Benson, A.M. Zarafshar and D. H. Gracias, *Self-loading*

lithographically structured microcontainers: 3D patterned, mobile microwells, Lab Chip 8,1621-1624 (2008) [Featured on the Cover].

- D. Gracias, *On the Tracks of Carrier Transport*, Nature Photonics (2007) 1, (10) 570-571.
- H. Ye, C. Randall, T. Leong, D. Slanac, E. Call and D. H. Gracias, *Remote Radio Frequency Controlled Nanoliter Chemistry and Chemical Delivery on Substrates*, Angewandte Chemie-International Edition (2007) 46, 4991-4994.
- T. Leong, P. Lester, T. Koh, E. Call and D. H. Gracias, *Surface Tension Driven Self-Folding Polyhedra*, Langmuir (2007) 23(17), 8747-8751 [Featured on the Cover].
- T. Leong, Z. Gu, T. Koh and D. H. Gracias, *Spatially Controlled Chemistry Using Remotely Guided Nanoliter Scale Containers*, J. Am. Chem. Soc. (JACS) (2006) 128 (35) 11336-11337.
- H. Ye, A. Abu-Akeel, J. Huang, H. E. Katz and D. H. Gracias, *Probing Organic Field Effect Transistors In-Situ During Operation Using SFG*, J. Am. Chem. Soc. (JACS) (2006), 128 (20), 6528-6529.
- M. Boncheva, D. H. Gracias, H. O. Jacobs and G. M. Whitesides, *Biomimetic self-assembly of a functional asymmetrical electronic device*, Proc. Nat. Acad. Sci. (PNAS) (2002) 99, 4937-4940.
- H. O. Jacobs, A. R. Tao, A. Schwartz, D. H. Gracias and G. M. Whitesides, *Fabrication of a cylindrical display by patterned assembly*, Science (2002) 296, 323-325.
- D. H. Gracias, J. Tien, T. L. Breen, C. Hsu and G. M. Whitesides, *Forming electrical networks in three dimensions by self-assembly*, Science (2000) 289, 1170-1172.
- D. H. Gracias, Z. Chen, Y. R. Shen and G. A. Somorjai, *Molecular Characterization of Polymer and Polymer Blend Surfaces. Combined Sum Frequency Generation Surface Vibrational Spectroscopy and Scanning Force Microscopy Studies*, Accounts of Chemical Research (1999) 32, 930-940. [Ph.D. Thesis Summary]

SELECTED PATENTS (out of 20 issued patents and > 5 pending applications)

- Reducing line to line capacitance using oriented dielectric films, K. O'Brien and D. H. Gracias, U.S. Patent 7518244 Granted April 14, 2009
- Fabricating stacked chips using fluidic templated-assembly, D. H. Gracias, U.S. Patent 7375425 Granted May 20, 2008

VI. MISCELLANEOUS HIGHLIGHTS

- Research funded by the National Science Foundation (NSF), National Institutes of Health (NIH), American Chemical Society (ACS), Arnold and Mabel Beckman, Camille and Henry Dreyfus, Iacocca Family, Alexander Von Humboldt, Goldman Philanthropic Foundations, DuPont, Defense Threat Reduction Agency (DTRA), Army Research Laboratory (ARL) and Defense Intelligence Agency (DIA).
- Given over 60 Invited talks at Government, Academic and Industrial Centers including NASA, NIST, MITRE, MIT, Caltech, UC Berkeley, UT Austin, Xerox-PARC, Intel and HP and conferences including the American Chemical Society (ACS), Biomedical Eng. Society (BMES) and the Gordon conference.
- Reviewer for over 30 journals including Science, Nature Photonics, Proceedings of the National Academy of Sciences (PNAS), Angewandte Chemie and Journal of the American Chemical Society.
- Grant reviewer for the NIH, NASA, NSF, DOD, US-CRDF, ACS, ISCAS and AAAS.
- Scientific advisory board of Lifeboat foundation (<http://lifeboat.com/ex/>). Member of the ACS, MRS and IEEE
- Have organized outreach workshops and mentored Baltimore Public School (K-12) teachers and students in research and educational projects.