

Biographical Sketch

Principal Investigator: Lloyd A. Bumm
Department of Physics and Astronomy
University of Oklahoma
440 W Brooks St
Norman, OK 73019
405-325-3961 x36107
bumm@nhn.ou.edu

A. Professional Preparation

Education

Clarkson University	chemistry	B.S. 1982
Northwestern University	physical chemistry	Ph.D. 1991
Pacific Northwest National Laboratory	physical chemistry	1991-1993
Pennsylvania State University	physical chemistry	1993-1998

Membership in Professional Societies

American Chemical Society

B. Appointments

Assistant Professor of Physics, University of Oklahoma	2001-present
Research Professor, Pennsylvania State University	1998-2001
Postdoctoral Associate, Pennsylvania State University	1993-1998
Postdoctoral Associate, Pacific Northwest National Laboratory	1991-1993
Graduate Research/Teaching Assistant, Northwestern University	1982-1991

C1. Publications (Four most closely related to project)

1. **Conductance Switching in Single Molecules through Conformational Changes**, Z. J. Donhauser, B. A. Mantoosh, K. F. Kelly, L. A. Bumm, J. D. Monnell, J. J. Stapleton, D. W. Price Jr., A. M. Rawlett, D. L. Allara, J. M. Tour, P. S. Weiss, *Science* **292**(5525), 2303–2307 (22 Jun 2001).
2. **Electron Tunneling Through Organic Molecules**, L. A. Bumm, J. J. Arnold, T. D. Dunbar, D. L. Allara, P. S. Weiss, *Journal of Physical Chemistry B*, **83**(38), 8122–8127 (23 Sep 1999).
3. **Directed Self-Assembly to Create Molecular Terraces with Molecularly Sharp Boundaries in Organic Monolayers**, L. A. Bumm, J. J. Arnold, L. F. Charles, T. D. Dunbar, D. L. Allara, P. S. Weiss, *Journal of the American Chemical Society* **121**(35), 8017–8021 (08 Sep 1999).
4. **Are Single Molecular Wires Conducting?** L. A. Bumm, J. J. Arnold, M. T. Cygan, T. D. Dunbar, T. P. Burgin, L. Jones II, D. L. Allara, J. M. Tour, P. S. Weiss, *Science* **271**(5256), 1705–1707 (22 Mar 1996).

Biographical Sketch

C2. Publications (Three other significant publications)

1. **Phase Separation within a Binary Self-Assembled Monolayer on Au{111} Driven by an Amide-Containing Alkanethiol**, R. K. Smith, S. M. Reed, P. A. Lewis, J. D. Monnell, R. S. Clegg, K. F. Kelly, L. A. Bumm, J. E. Hutchison, P. S. Weiss, *Journal of Physical Chemistry B* **105**(6), 1119–1122 (15 Feb 2001).
2. **Probing Electronic Properties of Conjugated and Saturated Molecules in Self-Assembled Monolayers**, P. S. Weiss, L. A. Bumm, T. D. Dunbar, T. P. Burgin, J. M. Tour, D. L. Allara In *Molecular Electronics: Science and Technology*; A. Aviram, M. Ratner, Eds.; Annals of the New York Academy of Sciences, vol. 852, (New York Academy of Sciences, New York, 1998), pp 145-168. (ISBN 1-57331-155-3).
3. **Small Cavity Nonresonant Tunable Microwave-Frequency Alternating Current Scanning Tunneling Microscope**, L. A. Bumm, P. S. Weiss, *Review of Scientific Instruments* **65**(8), 4140–4145 (Aug 1995).

E1. Collaborators:

Professor Wai Tak Yip, University of Oklahoma
Professor David L. Allara, Pennsylvania State University
Professor James M. Tour, Rice University

E2. Graduate and Postdoctoral Advisors:

Postdoctoral Advisor: Professor Paul S. Weiss, Pennsylvania State University
Postdoctoral Advisor: Professor James P. Cowin, Pacific Northwest National Laboratory
Graduate Advisor: Professor Richard P. Van Duyne, Northwestern University

E3. Members of My Research Group:

Undergraduate Student: Mr. Sage Ross
Undergraduate Student: Mr. James Dizikes
Undergraduate Student: Ms. Taylor Clark
Summer REU Student: Mr. T. Greg Easley
Graduate Student: Daminda Dahanayaka
Graduate Student: Sohrab Hossain
Graduate Student: Wesley Tennyson