

DONALD ALAN CHERNOFF  
Citizenship: U.S.A.

CURRICULUM VITAE February, 2005

Address:

Advanced Surface Microscopy, Inc.  
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POSITIONS HELD and MANAGEMENT EXPERIENCE

6/90- present: Advanced Surface Microscopy, Inc.: President of independent analytical and consulting laboratory providing research, analytical services, consultation and training for clients worldwide. ASM also sells calibration and test specimens, specialized calibration and measurement software, and buys and sells used Atomic Force Microscopes.

7/88- 9/90: Boehringer Mannheim Corp., Research and Development:

- Project Engineer II: Responsible for the staffing and supervision of a 6-person medical instrument assessment group and a 4-person production group, including capital expenditures and purchases of statistical software. Earned "Superior Product Development" award (1989) for improvements to a manufacturing process (raised yield from 20% to 70% while improving quality).

9/80- 7/88: BP America (formerly Standard Oil (Ohio)) Corporate Research:

- 3/83- 7/88: Project Leader, Chemical Physics and Analytical Microscopy.
- 9/80-2/83: Senior Research Chemist, Chemical Physics.
- Responsible for the supervision of 1-2 student interns.
- Responsible for annual project proposals and capital expenditures for several major instruments (totaling over \$380,000 during seven years).

8/78-8/80: University of Pennsylvania, Chemistry Department: Postdoctoral research fellow.

TECHNICAL EXPERIENCE

Microscopy: Experienced research user of Atomic Force Microscope (AFM), Scanning Tunneling Microscope (STM), Scanning Electron Microscope (SEM), and various optical microscopes. Research areas have included: invention of high precision feature measurement system using AFM, development of materials analysis applications of AFM phase imaging, surface structure of thin films, polished surfaces, and polymer fibers; microanalysis of bulk defects in ceramics; and application of optical microscopy to process improvement.

Laser Spectroscopy and Optics: Experienced designer and research user of pulsed and continuous visible and ultraviolet lasers, monochromators and optical multichannel analyzers. Research areas have included photochemistry of proteins, energy transfer in isolated molecules, and low temperature studies of ceramics.

EDUCATION, HONORS and FELLOWSHIPS

Ph.D., Physical Chemistry, University of Chicago, August, 1978

B.S., Chemistry, University of Chicago, June, 1973. Awarded general honors,  
Phi Beta Kappa and Sigma Xi.

National Science Foundation Graduate Fellowship, 1973-1976

U. of Chicago Harkins Fellowship in Physical Chemistry, 1973-1974

National Science Foundation Postdoctoral Fellowship, 1979-1980.

## FEDERAL RESEARCH GRANTS and CONTRACTS

1992 - NIH SBIR Phase I award: "High Resolution Tools for Atomic Force Microscopy", \$50,000, April 15-December 5, 1992. Principal Investigator.

## PROFESSIONAL SOCIETIES and SERVICE

Member: American Physical Society; Sigma Xi; American Chemical Society; American Vacuum Society; Microscopy Society of America; Materials Research Society.

Referee: Journal of Chemical Physics; Chemical Physics; Journal of the American Chemical Society; Journal of Physical Chemistry; Journal of Vacuum Science and Technology; National Science Foundation; ACS Petroleum Research Fund.

Conference Organizer: Pittcon, 2/88, co-organized symposium on Scanning Tunneling Microscopy.

Member, ASTM E42.14 (subcommittee on STM and AFM standards).

## SELECTED SCIENTIFIC PUBLICATIONS by DONALD ALAN CHERNOFF

4. "Collision Induced Intramolecular Vibrational Energy Transfer in  $^1B_2$  Aniline," Donald A. Chernoff and Stuart A. Rice, J. Chem. Phys. **70**, 2521-2541 (1979).
7. "Geminate Recombination of O<sub>2</sub> and Hemoglobin", D.A. Chernoff, R.M. Hochstrasser and A.W. Steele, Proc. Natl. Acad. Sci. (U.S.A.) **77**, 5606-5610 (1980).
14. "The Structure of Electronic Excited States in trans-Stilbene: Picosecond Transient Stokes and Anti-Stokes Raman Spectra", T.L. Gustafson, D.M. Roberts, and D. A. Chernoff, J. Chem. Phys. **81**, 3438-3443 (1984).
22. "Cathodoluminescence and Photoluminescence in Aluminum Nitride", R.A. Youngman, J.H. Harris, and D.A. Chernoff, Ceramic Transactions **5**, 399 (1989).
24. "Atomic Force Microscope Images of Collagen Fibers", Ellen A.G. Chernoff and Donald A. Chernoff, J. Vac. Sci. Technol. A **10**, 596 (1992).
30. "High Resolution Chemical Mapping Using Tapping Mode AFM with Phase Contrast", Donald A. Chernoff, Proceedings Microscopy and Microanalysis 1995, pp. 888.
37. "Automated, high precision measurement of critical dimensions using the Atomic Force Microscope", Donald A. Chernoff and David L. Burkhead, J. Vac. Sci. Technol. A **17**, 1457 (1999).
39. "Atomic Force Microscopy", Donald A. Chernoff and Sergei Magonov, chapter 19 in "Comprehensive Desk Reference of Polymer Characterization and Analysis", R. Brady, ed., Oxford University Press (2003).
41. "AFM Length Analysis of Data Marks: Measuring Jitter, Asymmetry, Process Noise and Process Position", Donald A. Chernoff and David L. Burkhead, in Optical Data Storage 2001, Terril Hurst, Seiji Kobayashi, Editors, Proceedings of SPIE vol. 4342, pp. <inpress> (2001).
44. "Analysis of Composite Surfaces with the Atomic Force Microscope: A Problem-Solving Approach", Donald A. Chernoff, in Surface Modification Technologies XV, ed. by T.S. Sudarshan and M. Jeandin, ASM International, 2002, pp.79-86.

## SELECTED PATENTS

1. "High precision calibration and feature measurement system for a scanning probe microscope", Donald A. Chernoff and Jason D. Lohr, U.S. Patent # 5,644,512, issued July 1, 1997.