

Curriculum Vitae
Marcus H. Mendenhall

PERSONAL HISTORY

Born January 31, 1959
Married June 7, 1981; two children

DEGREES AWARDED

Ph.D. California Institute of Technology Pasadena, CA (Physics)	1983
M.S. California Institute of Technology Pasadena, CA (Physics) in Physics	1981
B.S. Washington University (St. Louis) St. Louis, MO (Physics, (Summa Cum Laude))	1979

RESEARCH AREAS

Physics of materials and surfaces; molecular desorption from surfaces;
laser optics; analytical techniques for materials and thin films,
especially heavy ion scattering techniques; accelerator physics;
development of controlled data acquisition for a wide variety of experiments;
free electron lasers; manipulation of xrays

HONORS and AWARDS

Phi Beta Kappa	1978
NSF Graduate Fellowship	1979-82
Sigma Xi	1982
IBM Graduate Fellowship	1983
NATO Postdoctoral Fellowship	1985-1986

APPOINTMENTS:

Postdoctoral Fellow, California Institute of Technology	1983-1984
Assistant Professor of Physics, Vanderbilt University	1984-1985
NATO Fellow, CSNSM, Orsay, France	1985-1986
Assistant Professor of Physics, Vanderbilt University	1986-1991
Senior Research Associate in Physics, Vanderbilt University	1991-1993
Associate Director, Vanderbilt University Free-Electron Laser Center	1991-1995
Research Associate Professor of Physics, Vanderbilt University	1993-

Publications

- [1] Enhanced adhesion of films to semiconductors or metals by high energy bombardment. PATENT. No. 4,526,624.

- [2] Method and apparatus for time-of-flight medium energy particle scattering. PATENT. 5,026,988.
- [3] High resolution detector device for a particle time-of-flight measurement system. PATENT. No. 5,349,185.
- [4] M. H. Mendenhall, F. E. Carroll, J. W. Waters, and R. H. Traeger. A detector for low energy (few hundred eV-20 keV) X-rays in the presence of a high background of high energy. Submitted to Nuclear Instruments and Methods A, 1999.
- [5] F. E. Carroll, J. W. Waters, R. H. Traeger, M. H. Mendenhall, W. W. Clark, and C. A. Brau. Production of tunable, monochromatic, X-rays by the Vanderbilt free-electron laser. In *LASE'99*. SPIE, 1999.
- [6] F. Amirmahdi, C. Brau, K. Becker, and M. Mendenhall. New auto-correlation technique for the IR FEL optical pulse width measurements. *Nucl. Instrum. & Methods A*, 375:95, 1996.
- [7] F. Amirmahdi, C. Brau, M. Mendenhall, J. R. Engholm, and U. Happek. Electron bunch length measurements at the Vanderbilt FEL. *Nucl. Instrum. & Methods A*, 375:427, 1996.
- [8] G. Edwards, D. Evertson, W. Gabella, R. Grant, T. King, J. Kozub, M. Mendenhall, J. Shen, R. Shores, S. Storms, and R. Traeger. Free-electron lasers: Performance, reliability, and beam delivery. *IEEE J. of Special Topics in Quantum Electronics*, QE2:810–817, 1996.
- [9] Marcus H. Mendenhall and Robert A. Weller. An algorithm for ab initio computation of small-angle multiple scattering angular distributions. *Nucl. Instrum. & Methods B*, 93:5–10, 1994.
- [10] Lou Reinisch, Marcus H. Mendenhall, Steve Charous, , and Robert H. Ossoff. Computer assisted surgical techniques utilizing the Vanderbilt Free-electron Laser. *Laryngoscope*, 104:1323–1329, 1994.
- [11] Glenn Edwards, Regan Logan, Michael Copeland, Lou Reinisch, Jeffrey Davidson, J. Bruce Johnson, Robert Maciunas, Marcus Mendenhall, Robert Ossoff, Jerri Tribble, Jay Werkhaven, and Denis O;Day. Tissue ablation by a free-electron laser tuned to the amide II band. *Nature*, 371:416–419, 1994.
- [12] J. Bruce Johnson, Glenn Edwards, and Marcus Mendenhall. Low-cost, high performance array detector for spectroscopy based on a charge coupled photodiode. *Rev. Sci. Instrum.*, 65:1782–1783, 1994.
- [13] C. A. Brau and M. H. Mendenhall. Medical and materials research at the Vanderbilt University free-electron center. *Nucl. Instrum. & Methods A*, 341:21, 1993. Abstracts.
- [14] C. A. Brau and M. H. Mendenhall. The Vanderbilt University free-electron center. *Nucl. Instrum. & Methods A*, 331:4, 1993. Abstracts.

- [15] Marcus H. Mendenhall and Robert A. Weller. Algorithms for the rapid computation of classical cross sections for screened coulomb collisions. *Nucl. Instrum. & Methods B*, 58:11, 1991.
- [16] Marcus H. Mendenhall and Robert A. Weller. High resolution medium energy backscattering spectrometry. *Nucl. Instrum. & Methods B*, 59/60:120, 1991.
- [17] Jun Xu, M. H. Mendenhall, , and Joel Tellinghuisen. CN B-X emission in electron-stimulated desorption from alkali halides. *J. Chem. Physics*, 93:5281, 1990.
- [18] Marcus H. Mendenhall and Robert A. Weller. Helium ion induced erosion of calcium fluoride thin films. *Nucl. Instrum. & Methods B*, 51:400–406, 1990.
- [19] Marcus H. Mendenhall and Robert A. Weller. Destruction of a MgF₂ optical coating by 250 keV α particle irradiation. *Appl. Phys. Lett.*, 57:1712–1714, Oct 1990.
- [20] M. H. Mendenhall and R. A. Weller. Design of a new low-energy-particle time-of-flight spectrometer for surface analysis. *Nucl. Instrum. & Methods*, 40/41:1239, 1989.
- [21] M. H. Mendenhall and Robert A. Weller. Performance of a time-of-flight spectrometer for medium energy ion scattering. *Nucl. Instrum. Methods B*, 47:193, 1989.
- [22] M. H. Mendenhall, L. Hudson, D. Russell, J. Tellinghuisen, and N. Tolk. Nonthermal energy level populations in excited OH electronically desorbed from alkali halide surfaces. *Nucl. Instrum. & Methods B*, 33:834–835, 1988.
- [23] M. H. Mendenhall, A. V. Barnes, P. H. Bunton, Jr. and L. Hudson R. F. Haglund, D. P. Russella, D. P. Sarnthein, N. H. Tolk, and J. Tellinghuisen. Ultraviolet spectroscopy of CN⁻ in alkali dynamics of the metastable triplet state. *Chem. Phys. Lett.*, 147:59–64, 1988.
- [24] Marcus H. Mendenhall. *High Energy Heavy Ion Induced Enhanced Adhesion*. PhD thesis, California Institute of Technology, 1983. Advisor: T. A. Tombrello.