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Alexander H. Slocum

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Curriculum Vitae

Administrative Contact:

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Research Interests

MEMS, Nanotechnology, Precision Engineering; Machine Design; Product Design; Going faster on my snowboard, staying down longer SCUBA diving!

Teaching Interests

Precision Machine Design; Design; Urban Design Corps; Physics via sports

Education

Ph.D., Mechanical Engineering from M.I.T., June 1985
M.S., Mechanical Engineering from M.I.T., January 1983
B.S., Mechanical Engineering from M.I.T., June 1982

MIT Service

Assistant Professor (CE), Sept. 1985 July 1989
Assistant Professor (ME), July 1991 July 1992
Associate Professor (ME), July 1992 July 1995
Associate Professor (ME, tenured), July 1995 July 1998
Professor, July 1998 Present

Patents: (of 5 dozen +)

- T. Brogardh, H. Jerrerd, A. Robertson, A. Slocum, P. Willoughby, "Device and a method for calibration of an industrial robot", #6,418,774, July 2002.
- A. Slocum, "Single carriage robotic monorail material transfer system", 6,446,560, Sept. 10, 2002.
- A. Slocum, A. Pfahnl, E. Walker, R. Sartschev, "Temperature control structure", #6,448,575, September 10, 2002.
- A. Slocum, "Robust, small scale electrical contactor", #6,497,581, Dec. 24, 2002.



People

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- S. Awtar, A. Slocum, "Apparatus Having Motion with Pre-Determined Degrees of Freedom", #6,699,183, Feb. 10, 2004.
- S. Longson, A. Slocum "Wafer Level Contactor", #6,768,331, July 27, 2004.
- J. Qiu, A. Slocum, J. Lang, R. Struempfer, M. Brenner, J. Li, „Bistable Actuation techniques, Mechanisms, and Applications", # 6,911,891, June 28, 2005.
- A.H. Slocum, S. Awtar, A.J. Hart. "Material Transportation System", U.S. Patent 6,886,651, May 3, 2005.
- A.H. Slocum , "Flexible Connector", US Patent 7,040,949, May 9, 2006.

Principal Publications for last five years (shortened to past two years)

1. Book: Slocum, A. H., FUNdaMENTALS of Design, © 2005, Oxford University Press (in press)
2. Bamberg E, Grippo CP, Wanakamol P, Slocum AH, Boyce MC, Thomas, EL, "A tensile test device for in situ atomic force microscope mechanical testing", Precision Engineering, 30 (2006), pp. 71-84.
3. White, J.R., White, C.J., Slocum, A.H., "Octave-Tunable Miniature RF Resonators", IEEE Microwave And Wireless Components Letters, Vol. 15, No. 11, November 2005.
4. Hart, A.J., Slocum, A.H., Royer, L., "Growth of High-Quality Single-Walled Carbon Nanotube Films on Bare and Microstructured Silicon Substrates", Carbon , 44(2):348– 359, 2006.
5. Ma, H.,Slocum, A.H., "A Flexible-Input, Desired-Output (FIDO) Motor Controller for Engineering Design Classes", accepted IEEE Trans. Engineering Education.
6. Sweetland, M., Lienhard, J.H., Slocum, A.H., "A Convection/Radiation Temperature Control System for High Power Density Electronic Device Testing", accepted for publication IEEE Transactions on Applied Electronic Packaging, 8/2005.
7. Akilian, M, Forest, C.R., Slocum, A.H., Trumper, D.L., Schattenburg, M.L. "Thin Optic Constraint", Precision Engineering, available online 11 July 2006.
8. A. J. Hart, B. O. Boskovic, A. T. H. Chuang, V. B. Golovko, J. Robertson, B. F. G. Johnson, and A. H. Slocum, "Uniform and selective CVD growth of carbon nanotubes and nanofibres on arbitrarily microstructured silicon surfaces", Submitted to Nanotechnology, Sept 2005.
9. Hart, A.J., Slocum, A.H., "Rapid Growth and Flow-Mediated Nucleation of Millimeter-Scale Aligned Carbon Nanotube Structures from a Thin-Film Catalyst", Journal of Physical Chemistry B.
10. Qiu, J, Lang, J, Fellow, Slocum, A., Weber, A, "A Bulk-Micromachined Bistable Relay With U-Shaped Thermal Actuators", Journal Of Microelectromechanical Systems, Vol. 14, No. 5, October 2005, pp 1099-1109.
11. Li, J., Brenner, M.P., Christen, T., Kotilainen, M.S., Lang, J.H., Slocum, A.H., „Deep Reactive Ion-Etched Compliant Starting Zone Electrostatic Zipping Actuators", Journal Of Microelectromechanical Systems, Vol. 14, No. 6, December 2005, pp 1283-1297.
12. Hart, A.J., Slocum, A.H., "Force Output, Control of Film Structure, and Micro-Scale Shape Transfer by Carbon Nanotube Growth Under Mechanical Pressure", submitted to NanoLetters, Feb 2006

Scientific & Professional Societies:

Society of Mechanical Engineers
 American Society of Mechanical Engineers
 American Society for Precision Engineers
 IEEE Member

Honors & Awards

Massachusetts Professor of the Year Award, November 2000

Who's Who Among America's Teachers

ASME Leonardo da Vinci Award, 2004

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