

**Marc Madou**  
 Chancellor Professor  
*Department of Mechanical and Aerospace Engineering*  
*Biomedical Engineering Department*  
*Integrated Nanofabrication Facility (INRF)*  
*University of California, Irvine*

**EDUCATION/TRAINING**

| INSTITUTION AND LOCATION          | DEGREE<br>(if applicable) | YEAR(s) | FIELD OF STUDY                    |
|-----------------------------------|---------------------------|---------|-----------------------------------|
| Rijksuniversiteit, Ghent, Belgium | B.Sc.                     | 1973    | Physical Chemistry                |
| Rijksuniversiteit, Ghent, Belgium | M.Sc.                     | 1975    | Physical Chemistry                |
| Rijksuniversiteit, Ghent, Belgium | Ph.D                      | 1978    | Semiconductor<br>Electrochemistry |

**APPOINTMENTS**

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|----------------|--|
| 07/02- Present | Chancellor's Professor, Department of Mechanical and Aerospace Engineering, University of California, Irvine   |
| 2001 – 06/02   | Vice President Advanced Technology, Nanogen, Inc. (San Diego, CA)  |
| 1994 – Present | NASA Ames Research Center Associate (Mountain View, CA)  |
| 1993 – Present | Microfabrication Applications Principal (San Diego, CA)  |
| 1997 – 2000    | Center for Materials Research (CMR) Scholar (Endowed chair), Ohio State University (OSU);<br>Professor Materials (OSU);<br>Professor Chemistry (OSU);<br>Director NSF Center for Industrial Sensors and Measurements (CISM) ( OSU) |
| 1996 – 2000    | Visiting Scholar, UC Berkeley  |
| 1995 – 1996    | Visiting Miller Professor, UC Berkeley   |
| 1994 – 1995    | Visiting Professor, Louisiana State University (LSU),<br>Senior Scientific Advisor, Center for Advanced Microdevices (CAMD) (Baton Rouge, LA)  |
| 1989 – 1993    | Vice Chair and Founder, Teknekron Sensor Development Corp. (Menlo Park, CA)  |
| 1983 – 1989    | Director of Microsensor Department, SRI International (Menlo Park, CA)   |
| 1982 – 1989    | Associate Director of Physical Electronics Laboratory, SRI International   |
| 1982 – 1983    | Founder and Manager of Microsensor Program, SRI International  |
| 1981 – 1982    | Senior Materials Scientist, Materials Research Laboratory at SRI International   |
| 1980 – 1981    | Assistant Professor, Rijksuniversiteit (State University of Ghent) Ghent, Belgium  |
| 1979 -1980     | Visiting Scientist, SRI International (Menlo Park, CA), Materials Research   |
| 1978 – 1979    | Assistant Professor, Rijksuniversiteit (State University of Ghent) Ghent, Belgium  |

**RECENT PUBLICATIONS**

Journals:

1. M.Madou, A.Lai, G.Schmidt, X.Song, K.Kinoshita, M.Fendorf, A.Zettl and R.White, in Chemical and Biological Sensors and Analytical Electrochemical Methods, "Carbon Micromachining (CMEMS)" A.Ricco, M.Butler, P.Vanysck, G.Horvai, and A.Silva, Editors, PV97-19, pp. 61, the Electrochemical Society Proceedings Series, Pennington, NJ, 1997
2. J.Kim, X.Song, K.Kinoshita, M.Madou and R.White, "Electrochemical studies of carbon films from pyrolyzed photoresist", J.Electrochem.Soc., vol.145, pp.2314-2319, 1998
3. Srikanth Ranganathan, Richard McCreedy, Sree Mouli Majji, and Marc Madou, "Photoresist-derived carbon for microelectromechanical systems and electrochemical applications", J.Electrochem.Soc., vol. 147, pp. 277-282, 2000
4. C.L.Wang, L.Taherabadi, G.Y.Jia, M.Madou," C-MEMS for the Manufacture of 3D Microbatteries" , Electrochemical and Solid-State Letters, 7 (11), pp. A435-A438, 2004

5. C.L.Wang, G.Y.Jia, L.Taherabadi, M.Madou," A Novel Method for the Fabrication of High Aspect Ratio C-MEMS Structures, IEEE J.MEMS, in press
6. Lee, L. J., M. J. Madou, K. W. Koelling, S. Daunert, S. Lai, C. G. Koh, Y-J Juang, Y. Lu, and L. Yu, 2001. "Design and Fabrication of CD-Like Microfluidic Platforms for Diagnostics: Polymer-Based Microfabrication", Biomedical Microdevices, vol. 3, no. 4, pp. 339-351.
7. Madou, M. J., L. J. Lee, K. W. Koelling, S. Daunert, S. Lai, C. G. Koh, Y-J Juang, L. Yu, and Y. Lu, 2001. "Design and Fabrication of Polymer Microfluidic Platforms for Biomedical Applications", ANTEC-SPE 59th, vol. 3, pp. 2534-2538 (May).
8. Badr, I. H. A., R. D. Johnson, M. J. Madou, and L. G. Bachas, 2002. "Fluorescent Ion-Selective Optode Membranes Incorporated onto a Centrifugal Microfluidics Platform", accepted by Anal. Chem.
9. Huang,Y., E. Mather, J. Bell, and M. Madou, 2002. "MEMS-Based Sample Preparation for Molecular Diagnostics", Anal. Bioanal. Chem., vol. 372, pp. 49-65.
10. Wang, M., S. Yao, and M. Madou, 2002. A Long-Term Stable Iridium Oxide pH Electrode, Sensors and Actuators Part B, Chemical , vol. 81, no. 2-3, pp. 313-315.

Books and Book Chapters:

1. Chemical Sensing with Solid State Devices, M. J. Madou and S. R. Morrison, Academic Press, 1989.
2. Graduate level introduction to solid state chemical sensors, 556 pages.
3. Fundamentals of Microfabrication, 2002, 2nd edition, CRC Press. Graduate level introduction to Microfabrication, 723 pages.
4. Facilitating Choices of Machining Tools and Materials for 'Miniaturization Science: A Review, M. J. Madou in Tribology Issues and Opportunities in MEMS, proceedings of the NSF/AFOSR/ASME workshop held in Columbus, OH, November 9-11, 1997, edited by Bharat Bhushan for Kluwer Academic Publishers.

**SYNERGISTIC ACTIVITIES**

Dr. Madou puts major efforts in integration of the web in his classes. Several of his classes can be found at: <http://www.biomems.net>. Some of these efforts were sponsored by an internal award from OSU on use of multimedia in education. As Director of an NSF Center at OSU Dr. Madou worked with faculty across two colleges and 7 different departments. He also has had continuing collaborations with faculty at the University of Kentucky at Lexington in order to integrate biological assays and genetically engineered proteins in the diagnostic platforms he develops.

Collaborators:

Dr. Leonidas Bachas at the University of Kentucky at Lexington  
 Dr. Sylvia Daunert at the University of Kentucky at Lexington  
 Dr. Michael Heller at UCSD Mr. John Hines at Nasa Ames  
 Dr. Greg Kellogg at Tecan Boston Dr. Kim Kinoshita at LBNL Dr. Jim Lee at OSU  
 Dr. Terrance Leighton and Dr. Alex Lucas at CHORI  
 Dr. Jim Lee at OSU  
 Dr. McCreery at OSU  
 Dr. Jim Zoval at UCI

Other Affiliations:

NASA Ames associate  
 SensIrox Founder and Advisor  
 ChipRx Founder and Advisor  
 Microbionics Founder and Advisor  
 Journal of Electrochemical Society: member at large  
 Editor Sensors and Actuators B  
 Organizing Committee Nanotech Montreux  
 MRS Symposium Organizer  
 Analytical and Bioanalytical Chemistry: Advisory Board