



## Silicon Valley Technical Institute

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# Bio-Technology & Electronics Convergence Trends and Opportunities

Oct. 11, 2005

9am-4pm

The merging of Electronics with Bio-technology promises the advent of a totally new class of devices such as sensors and actuators(MEMS&NEMS) with applications in diagnostics, responsive drug delivery, bio-compatibility, self-assembly etc. Proteins and nucleic acid are information rich molecules with structural and electrical properties making their incorporation in the human manufacturing arsenal an attractive proposition. This combination has become possible as today both top-down traditional manufacturing (e.g., MEMS and NEMS) and novel bottom-up manufacturing can realize components overlapping in size. The following topics will be covered:

- MEMS and NEMS in Biotechnology: An Overview
- Top-Down and Bottom-Up Machining
- Nanotechnology Applications:
  - Electronic DNA Arrays
  - CD Fluidics
  - Smart Pill
  - Smart Batteries
  - It is a carbon world
  - Conclusions
- Diagnostics on a CD
  - Compare fluidic platforms
  - Diagnostics versus high-throughput screening: valving
  - Sample preparation
  - Sample splitting
  - Lysing
  - Purification
  - DNA amplification: PCR
  - DNA detection
- Drug Delivery:
  - Responsive Drug Delivery
  - Options compared
  - The smart pill
  - Protein Engineering
- Carbon - MEMS: Applications from Sensors to Batteries
  - Si versus carbon
  - A new fabrication method
  - 3D carbon
- Applications
  - Nanoelectronics
  - DNA sensor
  - Carbon micro battery
- Conclusions

### Schedule

Oct. 11, 2005

Check-in: 8:30 am –9:00 am

Lecture: 9:00 am - 4.00 pm

Lunch: noon-1:00 pm

### Tuition

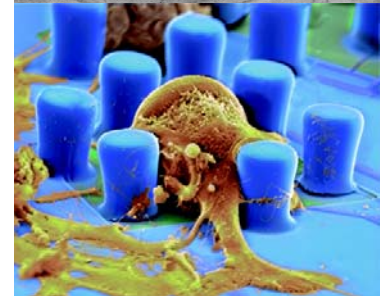
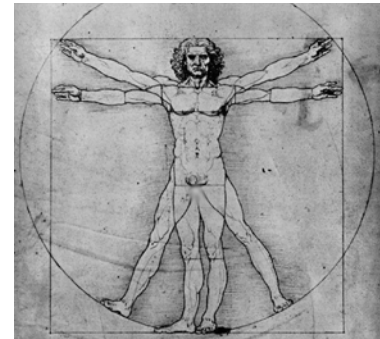
Fee for the seminar is \$350. Advance registration fee is \$320 if registered and paid by Sept 28. The registration fee includes:

- One days of instruction
- Seminar notes
- Certificate

(Lunch and refreshments are provided)

### Location

1762 Technology Drive, San Jose, CA



### About the Instructor:

**Dr. Marc Madou** is a Chancellor's Professor at UC Irvine, Calif. with Research focus in BIO-MEMS. Prior to that he was professor at OSU & UC Berkeley.

Dr. Madou has over 25 years experience in industry, academia and as a board member in several start ups in Bio-technology area.

During these years, he has directed the research & contributed SRI, AMES, Nanogens,&CAMD

He wrote a book on Fundamentals of Microfabrication (1997) and revised as a second edition in 2002. This is well known book in MEMS area.

He has earned Ph.D at the university of Ghent in Belgium in Solid State Physics under Prof. Dekeyser in 1978.

Seating is limited. Please register in advance.  
Register on line at <http://www.svtii.com> or  
Call: 408-573-0100