



## NANOTUBE-99

# International Workshop on the Science and Application of Nanotubes

East Lansing, Michigan, USA, July 24-27, 1999

## Workshop Schedule

### Saturday, July 24, 1999 – Morning

- 08:15            Opening Remarks
- 08:30 – 10:30    Session A:  
Morphology, Characterization, and Electronic Structure of Nanotubes I  
                    Coordinators: Mildred Dresselhaus, Philippe Lambin
- A.x Contributed Talks and Posters
- 10:30 – 11:00    Coffee Break (sponsored by Zyvex)
- 11:00 – 12:30    Session B:  
Morphology, Characterization, and Electronic Structure of Nanotubes II  
                    Coordinators: Annick Loiseau, Eugene Mele
- B.x Contributed Talks and Posters
- 12:30 – 13:30    Lunch

### Saturday, July 24, 1999 – Afternoon

- 13:30 – 15:30    Session C:  
Formation Process of Nanotubes I  
                    Coordinators: Jerzy Bernholc, Zhifeng Ren
- C.x Contributed Talks and Posters
- 15:30 – 16:30    Coffee Break (sponsored by MSU Composite Center)
- 16:30 – 18:30    Session D:  
Formation Process of Nanotubes II  
                    Coordinators: Jean-Christophe Charlier, Gary G. Tibbetts
- D.x Contributed Talks and Posters

### Sunday, July 25, 1999 – Morning

- Lazy Morning    Time to Enjoy MSU Campus  
                    Session E:

- 10:00 – 11:00      Mechanical Properties of Nanotubes
- Coordinator: David Luzzi
- E.x Contributed Talks and Posters
- 11:00 – 12:30      Session F:  
Chemical Properties of Nanotubes
- Coordinators: John E. Fischer, Susumu Saito
- F.x Contributed Talks and Posters
- 12:30 – 13:30      Lunch
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Sunday, July 25, 1999 – Afternoon

- 13:30  
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17:00      Session G:  
Electronic Properties and Transport in Nanotubes
- Coordinators: Jisoon Ihm, Alex Zettl
- G.x Contributed Talks and Posters
- Coffee Served during Poster Presentation (sponsored by MSU CFMR)
- 17:00  
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19:00      Session H:  
Applications of Nanotubes
- Coordinator: Cees Dekker
- H.1 ["Field emission displays \(FEDs\) have much in common with cathode-ray tubes \(CRTs\)"](#)  
[by W.B. Choi, Y.H. Lee, J.H. Kang, H.Y. Kim, D.S. Chung, I.T. Han, Y.W. Jin, and J.M. Kim](#)
- H.2 ["Carbon Nanotube Artificial Muscles "](#)  
[by R. H. Baughman, C. Cui, A. A. Zakhidov, Z. Iqbal, J. N. Barisci, G. M. Spinks, G. G. Wallace, A. Mazzoldi, D. De Rossi, A. G. Rinzler, O. Jaschinski, S. Roth, and M. Kertesz](#)
- H.x Contributed Talks and Posters
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Monday, July 26, 1999 – Morning

- 08:30 –  
10:30      Session I:  
Formation and Characterization of Nanotubes I
- Session Chair: Gene Dresselhaus
- I.1 ["Growth dynamics of graphitic carbon by laser ablation"](#)  
[by S. Iijima, M. Yudasaka, K. Takahashi and F. Kokai](#)
- I.2 ["Energetics and Electronic Properties of Doped Nanotubes"](#)  
[by Susumu Saito](#)
- I.3 ["Dynamics of Interacting Nanotubes"](#)  
[by Young-Kyun Kwon and David Tománek](#)
- 10:30 –  
11:00      Coffee Break (sponsored by Zyvex)
- 10:30 –  
12:30      Session J:  
Formation and Characterization of Nanotubes II
- Session Chair: Laszlo Forro
- J.1 ["Synthesis, structure, chemistry and growth of composite B-N-C nanotubes and filled carbon nanotubes"](#)  
[by A. Loiseau](#)
- J.2 ["Simulation of STM images of carbon nanotubes: Principles and illustrations"](#)  
[by Philippe Lambin and Vincent Meunier](#)

- J.3 ["Perspectives on Nanotube Applications from the Vapor-Grown Carbon Fiber Community"](#)  
by Gary G. Tibbetts

12:30 –  
13:30

Lunch

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Monday, July 26, 1999 – Afternoon

13:30 –  
15:30

Session K:  
Formation and Characterization of Nanotubes III

Session Chair: Peter Eklund

- K.1 ["Large arrays of well-aligned carbon nanotubes"](#)  
by Z. F. Ren, Z. P. Huang, D. Z. Wang, and J. G. Wen
- K.2 ["Catalytic Growth Mechanisms for Single-Wall Nanotubes"](#)  
by J.-C. Charlier
- K.3 ["Nanoscopic Hybrid Materials: The Synthesis, Structure and Properties of Peapods, CATs and Kin"](#)  
by David E. Luzzi and Brian W. Smith

15:30 –  
16:00

Coffee Break (sponsored by Dow Chemical Company)

16:00 –  
18:00

Session L:  
Ground-State Properties of Nanotubes

Session Chair: Sumio Iijima

- L.1 ["Physical Properties of Commercially-Available SWNT"](#)  
by M. Tachibana, K.A. Williams, S.L. Fang, E. Richter, and P.C. Eklund
- L.2 ["Doped Nanotubes: Fundamental Properties and Battery Applications"](#)  
by John E. Fischer, Roland S. Lee and Agnes Claye
- L.3 ["Mechanical Properties and Transport in Carbon Nanotubes"](#)  
by J. Bernholc, M. Buongiorno Nardelli, J.-L. Fattebert, D. Orlikowski, R. Roland and Q. Zhao
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Tuesday, July 27, 1999 – Morning

08:00 –  
10:00

Session M:  
Electronic Properties of Nanotubes I

Session Chair: Walt de Heer

- M.1 ["Defects and Transport in Carbon Nanotubes"](#)  
by Steven G. Louie
- M.2 ["Electrical transport in carbon nanotubes and quantum wires: experiments and theoretical results"](#)  
by Phaedon Avouris
- M.3 ["Field emission from carbon nanotubes of various tip structures"](#)  
by Jisoon Ihm and Seungwu Han

10:00 –  
10:30

Coffee Break

10:30 –  
12:30

Session N:  
Electronic Properties of Nanotubes II

Session Chair: Steven G. Louie

- N.1 ["Second-Order Resonant Raman Spectra of Single-walled Carbon Nanotubes"](#)  
by Mildred S. Dresselhaus and Gene Dresselhaus
- ["Electronic Structure Inferred from Resonant Raman Spectra of Carbon](#)

- N.2 ["Nanotubes"](#)  
by Gene Dresselhaus and M.S. Dresselhaus
- N.3 ["Carbon Nanotubes Kinks as Intramolecular Junctions"](#)  
by Cees Dekker

12:30 –  
13:30 Lunch

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Tuesday, July 27, 1999 – Afternoon

- 13:30 – 16:30 Session O:  
Electronic Properties of Nanotubes III  
Session Chair: Phaedon Avouris
- O.1 ["From mechanical to electronic properties of carbon nanotubes"](#)  
by Laszlo Forro, J.-P. Salvetat, J.-M. Bonard, R. Gaal, B. Ruzicka, and L. Degiorgi
- O.2 ["In situ electron microscopy experiments on MWNTs"](#)  
by Walt de Heer, Philippe Poncharal, R. Nitsche, and Z.L. Wang
- O.3 ["Density Waves and STM Imaging of Carbon Nanotubes"](#)  
by E.J. Mele and C.L. Kane
- O.4 "T.B.A."  
by Alex Zettl
- 16:30 Closing Remarks
- 17:00 End of NANOTUBE-99
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 ... back  
to the [NANOTUBE-99](#)  
[Home Page](#)



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