

## Saikat Talapatra

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### A. Work Experience

**Assistant Professor**, Department of Physics, Southern Illinois Univ., Carbondale, IL (Jan '07 – present)  
**Summer Faculty Fellow**, Air Force Research Lab, Mat. Sci. Directorate, WPAFB, OH (June' 09 –July'09)  
**Visiting Researcher**, Rensselaer Nanotechnology Center, Troy, NY (July '07 – Aug '07)  
**Postdoctoral Research Associate**, Rensselaer Nanotechnology Center, Troy, NY (Aug '02 – Dec '06)  
**Teaching / Research Asst.**, Dept. of Physics, Southern Illinois Univ., Carbondale (Aug'97 – Aug '02)  
**Assistant Teacher** in Physics, Kalidhan Institution, Calcutta, India (April '95 – July '97)

### B. Education

**Ph.D.** Engineering Science, Southern Illinois University Carbondale, IL (2002)  
**M.S.** Physics, Southern Illinois University Carbondale, IL. (1999)  
**M.Sc.** Physics, Jadavpur University, Calcutta, India. (1994)  
**B.Sc.** Physics (Honors) & **B. Ed.** Regional College of Edu., Bhubaneswar, Utkal Univ., India (1992)

### C. Awards and Honors

- Air Force Summer Faculty Fellowship 2009.
- Biography profiled in Strathmore's Who's Who, 2005.
- Richard and Donna Falvo Outstanding Dissertation Award 2003, SIUC.
- Fellow, Link Energy Foundation, Link Foundation, 2001, NY, USA.
- Graduate Aptitude Test in Engineering, "Physics" Fellowship, 1995, India.
- NCERT Undergraduate Merit Scholarship, 1988-1992, India.

### D. Current Research Interest

- Synthesis and characterization of multifunctional carbon nanotube based architectures for electrochemical energy storage devices, novel materials for hydrogen storage, catalyst support materials and photovoltaics
- Low-temperature electronic /magnetic transport in carbon nanostructures (Graphene, Nanotubes)
- Synthesis and Characterization of Magnetic Nanowires
- Magnetism in nano carbon structures
- Adsorption on carbon nanotubes

### E. Professional Membership

- Member American Physical Society (APS)
- Member of the Southern Illinois University Faculty Association (SIUCFA), IEA/NEA

### F. Patents & Invention Disclosures

1. S. Talapatra, K. Mandal "Single step synthesis of carbon nanotube based catalyst materials" (Invention disclosure submitted to SIUC's technology transfer office, 31<sup>st</sup> May 2009 )
2. S. Talapatra, S. Kar, S. Pal, R. Vajtai, P. M. Ajayan "Carbon nanotube growth on metallic substrates using vapor phase catalyst delivery" (U.S. Patent Filed, **Atty. Dkt # 047182-0171**, 2006).
3. P. M. Ajayan, S. Talapatra, R. Vajtai, A. Srivastava, O. N. Srivastava "Carbon nanotube filters" (U.S. Patent Filed **Atty. Dkt. No.: 047182-0146**, 2005).

### G. Summary of Presentation and Publications

- Total # of Peer Reviewed Articles: 46 (includes 1 Invited Review, 1 Invited Article and 1 Book Chapter);
- Total # of Proceeding / Bulletins/Abstracts: 47
- Total # of Citations: ~ 950 (ISI)
- Total # of Presentations/Talks: 28 (includes 14 invited)

## H. Publications

### Peer Reviewed Journals

#### Selected (10/44)

1. R. Shah, X. F. Zhang, S. Talapatra, "Electrochemical double layer capacitor electrodes using aligned carbon nanotubes grown directly on metals", *Nanotechnology* **20** (2009) 395202.
2. C. Soldano, S. Kar, S. Talapatra, S. Nayak and P. M. Ajayan, "Detecting Nanoscale Magnetic Activity with single Carbon Nanotube", *Nano Letters* **8**, 4498–4505 (2008).
3. Y. Zhang, S. Talapatra, S. Kar, R. Vajtai, S. Kayak and P. M. Ajayan "First principles study of defect-induced magnetism in carbon ", *Phys. Rev. Lett.* **99**, 107201 (2007).
4. S. Talapatra, S. Kar, S. Pal, R. Vajtai, L. Ci, P. Victor, M. M. Shaijumon, S. Kaur, O. Nalamasu and P. M. Ajayan, "Growth of aligned nanotubes on bulk metals", *Nature Nanotechnology* **1**, 110-115, (2006).
5. S. Talapatra, P. Ganeshan, T. Kim, R. Vajtai, M. Huang, M. Shima, G. Ramanath, D. Srivastava S. C. Deevi and P. M. Ajayan, "Irradiation induced magnetism in carbon nano structures", *Phys. Rev. Lett.* **95**, 097201 (2005).
6. A. Srivastava, O. N. Srivastava, S. Talapatra, R. Vajtai and P. M. Ajayan "Carbon nanotube filters", *Nature Materials* **3**, 610 (2004).
7. A. D. Migone, S. Talapatra, "Adsorption Studies on Carbon Nanotubes", *Encyclopedia of Nanoscience and Nanotechnology* **4**, 749-767 ed. H. S. Nalwa, ASP, USA, (2004). **[Invited Review Chapter]**
8. S. Talapatra, V. Krunglevichute and A. D. Migone, "Higher coverage gas adsorption on the surface of carbon nanotubes: Evidence of a new phase in the second layer", *Phys. Rev. Lett.* **89**, 246106 (2002).
9. S. Talapatra and A. D. Migone, "Existence of novel quasi 1-D phases of atoms adsorbed on the exterior surface of closed ended single walled nanotube bundles", *Phys. Rev. Lett.* **87**, 201606 (2001).
10. S. Talapatra, A. J. Zambano, S. E. Weber and A. D. Migone, "Gases do not adsorb on the interstitial channels of closed end single walled nanotubes", *Phys. Rev. Lett.* **85**, 138 (2000).

#### Others

11. X. MA, D. Anand, X. F. Zhang "Carbon Nanotube Textured Sand for Controlling Bioavailability of Contaminated Sediments", *Nano Research*, (Accepted 2010).
12. P. K. Dubey, A. S. K. Sinha, S. Talapatra, N. Koratkar, P. M. Ajayan, O. N. Srivastava, "Hydrogen generation by water electrolysis with CNT electrodes", *Int. J. Hydrogen Energy*, (in press 2010).
13. R. Shah, X. F. Zhang, X. An, S. Kar, S. Talapatra, "Ferrocene derived carbon nanotubes and their application as electrochemical double layer capacitors" *J. Nanosci. Nanotech.* **10**, 4043-4048 (2010).
14. S. Pal, S. Kar, C. Soldano, S. Lastella, A. Kumar R. Vajtai, S. Talapatra, T. Borca-Tasciuc , P. M. Ajayan, "Importance of Cr<sub>2</sub>O<sub>3</sub> layer for growth of carbon nanotubes on superalloys", *Carbon* **48**, 844 - 853 (2010).
15. S. Talapatra, S. Kar, R. Shah, C. Schenk, X. F. Zhang, "Enhancement of electrical performance of ultra-long multi-wall carbon nanotube arrays by Au/Pd coating and High-Bias Treatment" *Science of Advanced Materials* **1**, 192-197 (2009). **[Invited]**

16. X. F. Zhang, B. Luster, A. Church, A. A. Vivoedin, C. Murature, P. Kohli, S. Aoudi, S. Talapatra, "Carbon Nanotube-MoS<sub>2</sub> nanocomposites as solid lubricants", *ACS Applied Materials and Interfaces* **1**, 735-739 (2009).
17. S. Kar, C. Soldano, L. Chen, S. Talapatra, R. Vajtai, S. Nayak, P. M. Ajayan "High bias induced disorder reduction and channel enhancement in template grown carbon nanotubes", *ACS Nano* **3**, 217 -223 (2009).
18. A. Kulamarva, P. Raja, J. Bhathena, H. Chen, S. Talapatra, P. M. Ajayan, O. Nalamasu, S. Prakash, "Microcapsule carbon nanotube devices for therapeutic applications", *Nanotechnology* **20**, No 2 (14 January 2009) 025612 (7pp).
19. S. Talapatra, X. Tang, M. Padi, T. Kim, R. Vajtai, G.V.S. Sastry, M. Shima, S. C. Deevi and P. M. Ajayan, "Synthesis and Characterization of Cobalt Nickel Alloy Nanowires" *J. Mat. Res.* **44**, 2271-2275 (2009).
20. X. Li, X. Zhang, L. Ci, R. Shah, C. Wolfe, S. Kar, S. Talapatra and P. M. Ajayan, "Air assisted growth of long aligned carbon nanotube films", *Nanotechnology* **19**, 455609 (7 pp) (2008).
21. N. Punbusayakul, L. Ci, S. Talapatra, W. Surareungchai and P. M. Ajayan, "Ultralong aligned multi-walled carbon nanotube for electrochemical sensing" *J. Nanosci and Nanotech.* **8**, 2085-2090 (2008).
22. S. Pal, S. Talapatra, S. Kar, R. Vajtai, L. Ci, T. Borca-Tasciuc, L. Schadler and P. M. Ajayan, "Time and temperature dependence of multi walled nanotube growth on Inconel 600" *Nanotechnology* **19**, (2008).
23. L. Ci, J. Wei, N. Punbusayakul, R. Vajati, S. Talapatra, and P.M. Ajayan, "Multifunctional macro architectures of double-walled carbon nanotube fibers" *Adv. Mat.* **19**, 1719 – 1723 (2007).
24. N. Punbusayakul, S. Talapatra, L. Ci, W. Surareungchai and P.M. Ajayan, "Double walled carbon nanotube electrodes for electrochemical sensing", *Elece. Sol. Lett.* **10**, F13-F17, (2007).
25. S. Talapatra, T. Kin, B. Q. Wei, S. Kar, R. Vajtai, G.V.S. Sastry, "Room temperature magnetism in graphitic nanoclusters" *Nanopages.* **1**, 112-116 (2006).
26. K. Awasthi, S. Awasthi, A. Srivastava, R. Kamalakaran, S. Talapatra, P. M. Ajayan, O. N. Srivastava, "Synthesis and Characterization of CNT-polyethylene Oxide Composite.", *Nanotechnology* **17**, 5417-5422 (2006).
27. A. Vijayaraghavan, S. Kar, S. Talapatra, C. Soldano, O. Nalamasu and P. M. Ajayan "Charge-injection-induced Dynamic Screening and Origin of Hysteresis in Field-modulated Transport in Single-Wall Carbon Nanotubes" *Appl. Phys. Lett.* **89**, 162108 (2006).
28. S. Kar, A. Vijayaraghavan, C. Soldano, S. Talapatra, R. Vajtai, O. Nalamasu and P. M. Ajayan "Quantitative analysis of hysteresis in carbon nanotube field-effect Transistors" *Appl. Phys. Lett.* **89**, 132118 (2006).
29. D. S. Rawat, N. Taylor, S. Talapatra, S. K. Dhali, P. M. Ajayan and A. D. Migone, "Effect of Surface Cleaning and Functionalization of Nanotubes on Gas Adsorption" *Phys. Rev. B. (Brief Reports)* **74**, 113403 (2006).
30. K. Kordas, T. Mustonen, G. Toth, H. Jantunen, M. Lajunen, C. Soldano, S. Talapatra, S. Kar, R. Vajtai, and P.M. Ajayan, "Ink-Jet Printing of Electrically Conductive Patterns of Carbon Nanotubes", *Small.* **2**, (No.8-9) 1021-1025 (2006).
31. A. Adhikari, M. Huang, S. Talapatra, and P. M. Ajayan, "Proton beam induced modification of Activation Energy of Single Walled nanotubes", *NIMB.* **245** 431-434 (2006).
32. S. Talapatra, J. Y. Cheng, N. Chakrapani, S. Trasobares, M. Huang, R. Vajtai and P. M. Ajayan, "Ion beam induced structural modification of nanodiamonds", *Nanotechnology.* **17**, 305-309 (2006).

33. Y. J. Jung, S. Kar, S. Talapatra, C. Soldano, G. Viswanathan, X. Li, Z. Yao, F. S. Ou, A. Avadhanula, R. Vajtai, S. Curran, O. Nalamasu, P. Ajayan, "Aligned Carbon Nanotube-Polymer Hybrid Architectures for Diverse Flexible Electronic Applications" *Nano Lett.* **6** 413-418 (2006).
34. A. Cao, S. Talapatra, Y. Choi, R. Vajtai, P. M. Ajayan, A. Filin, P. Persans & A. R. Secades, "Recovered Band-gap absorption of single-walled carbon nanotubes in acetone and alcohols", *Adv. Mater.* **17**, 147-150 (2005).
35. A. Cao, S. Talapatra, R. Vajtai and P. M. Ajayan, "Flow induced planar assembly of parallel carbon nanotubes and crossed nanotube junctions", *J. Nanosci. Nanotech* **5**, 1177-1180 (2005).
36. N. Pala, S. Romyantsev, J. Sinius, S. Talapatra, M. Shur, R. Gaska, R. Vajtai and P. M. Ajayan "CuS thin films on flexible substrates", *Electronics Letters* **40**, 273-274 (2004).
37. N. Koratkar, A. Modi, J. Kim, B. Q. Wei, R. Vajtai, S. Talapatra and P. M. Ajayan, "Mobility of carbon nanotubes under high electric fields", *J. Nanosci. Nanotech* **4**, 69-71 (2004).
38. V. Krungleviciute, L. Heroux, S. Talapatra, and A. D. Migone, "Gas adsorption on HiPco nanotubes: surface area determination and Ne 2nd layer data" *Nano Letters* **4**, 1133-1137 (2004).
39. D. S. Rawat, S. Talapatra, K. Lafdi and A. D. Migone, "Synthesis of novel nanofiber doped Carbon liquid crystals as suitable adsorbents for hydrogen storage" [*Special Issue on Hydrogen Storage in Carbon Materials*]. *App. Phys. A* **78**, 969-973. (2004).
40. S. Talapatra, "Hydrogen adsorption studies on carbon nanotubes: implications on energy applications", **Book Series Research Papers of Link Foundation fellows**, 3, Univ. of Rochester Press (2003).
41. S. Talapatra and A. D. Migone, "Methane adsorption on closed ended single walled nanotubes". *Phys. Rev. B* **65**, 045416 (2002).
42. S. Talapatra, D. S. Rawat and A. D. Migone, "Possible existence of a higher coverage phase of Argon adsorbed on SWNT bundles", *J. Nanosci. Nanotech.* **5**, (2002).
43. A. J. Zambano, S. Talapatra, K. Lafdi, M. T. Aziz, W. McMillan, G. Shaughnessy, A. D. Migone, M. Yudasaka, S. Iijima, F. Kokai, K. Takahashi, "Adsorbate binding energy and monolayer capacity of xenon on carbon nanohorns", *Nanotechnology* **13**, 201-204 (2002).
44. A. J. Zambano, S. Talapatra, and A. D. Migone, "Binding energy and monolayer capacity of xenon on single walled nanotube bundles", *Phys. Rev. B.* **64**, 075415 (2001).
45. S. E. Weber, S. Talapatra, C. Journet, A. J. Zambano and A. D. Migone "Determination of binding energy of Methane on single walled nanotube bundles", *Phys. Rev. B.* **61**, 13150 (2000).
46. E. B. Mackie, D. H. Galvan, E. Adem, S. Talapatra, G. Yang and A. D. Migone, "Production of WS<sub>2</sub> nanotubes by an activation method", *Adv. Mater.* **12**, 7, (2000).

*Conference proceedings / bulletins / abstracts*

1. S. Talapatra, S. Kar, R. Shah, S. Ghosh, X. An, T. J. Simmons, M. Washington, S. Nayak, "Ultrathin Graphene Membranes as Flexible Electrodes for Electrochemical Double Layer Capacitors", APS March Meeting, Portland, OR 2010.

2. A. Church, X.F. Zhang, B. Luster, P. Kohli, S. Aoaudi, S. Talapatra, "Synthesis, Characterization and Adaptability of Carbon Nanotubes based solid lubricants", APS March Meeting, Portland, OR 2010.
3. S. Kar, X. An, E. Joseph, T. J. Simmons, S. Talapatra, M. Washington, S. Nayak "Large-area Graphene-PDMS Hybrid Structures for Multifunctional Applications", APS March Meeting, Portland, OR 2010.
4. X. An, T. Simmons, R. Shah, M. Washington, S. Nayak, S. Talapatra and S. Kar "Development of Conductometric Sensors and Supercapacitors from Aqueous Suspensions of Functionalized Graphene". MRS Fall Meeting, Boston, (2009).
5. X. An, T. Simmons, M. Washington, S. K. Nayak, S. Talapatra and S. Kar, "Large-scale Exfoliation of Graphite into Stable Aqueous Solutions of Graphene Using a Non-covalent Functionalization". MRS Fall Meeting, Boston, (2009).
6. C. Wolfe, R. Shah, X. F. Zhang, X. An, S. kar, S. Talapatra, "Electrical characterization of carbon nanotubes bundles synthesized from chemical vapor deposition of Ferrocene." APS March Meeting Pittsburg, (2009).
7. X. F. Zhang, D. Rawat, T. Furuhashi, R. Shah, A. D. Migone, S. Talapatra "Hydrogen adsorption on metal coated multiwalled carbon nanotubes.", APS March Meeting Pittsburg, (2009).
8. S. Talapatra, R. Shah, C. Schenk, X. F. Zhang, S. kar, "Electrical transport in long bundles of carbon nanotube-metal hybrids.", APS March Meeting Pittsburg, (2009).
9. R. Shah, X. F. Zhang, S. Talapatra, "Electrochemical Double Layer Capacitors Using Aligned Multiwall Carbon Nanotubes Grown Directly on Conductive Substrates.", APS March Meeting Pittsburg, (2009).
10. C. Soldano, S. Kar, L. Chen, S. Talapatra, R. Vajtai, S. Nayak, P. M. Ajayan "Low-temperature electronic transport in one-dimensional hybrid systems: platinum cluster decorated multi wall nanotubes" NT-08, Montpellier, France (2008).
11. X. Zhang, R. Shah, S. Talapatra, "Air assisted growth of long aligned carbon nanotube films" APS March Meeting, New Orleans, LA (2008).
12. R. Shah, I. Dubenko, A. Church, X. Zhang, S. Stadler, S. Talapatra, N. Ali, "Synthesis and Characterization of Iron-Nickel Nanowires", APS March Meeting, New Orleans, LA (2008).
13. S. Kar, L. Chen, C. Soldano, S. Talapatra, R. Vajtai, S. Nayak, P. Ajayan, "Low-temperature electronic transport in Pt-nanocluster decorated alumina template grown carbon nanotubes" APS March Meeting, New Orleans, LA (2008).
14. C. Soldano, S. Kar, R. Vajtai, S. Talapatra, S. Nayak, P. Ajayan, "Low-temperature electronic transport in ferromagnetic cluster embedded carbon nanotubes" APS Meeting, New Orleans, (2008).
15. C. Soldano, L. Chen, S. Kar, S. Talapatra, R. Vajtai, S. Nayak, P. Ajayan, "Conductance enhancement of carbon nanotubes through metallization" APS Meeting, New Orleans, LA (2008).
16. N. Punbasayakul, S. Talapatra, L. Ci, W. Surareunchai and P. M. Ajayan "Electrochemical Sensing Properties of Ultra Long Aligned Multi-Walled Carbon Nanotube Microelectrodes" MRS Proceeding (2007).
17. S. Talapatra, S. Kar, S. K. Pal, R. Vajtai, P. G. Ganesh and P.M.Ajayan, "Growth of Carbon Nanotubes on metallic super alloys". APS March Meeting, Denver, CO (2007).

18. C. Soldano, S. Kar, S. Talapatra, S. Nayak and P. M. Ajayan "Transport properties of metallic nanocluster impregnated multi wall carbon nanotubes" APS March Meeting, Denver, CO (2007).
19. S.K.Pal, S.Talapatra, S.Kar, R.Vajtai, L.S.Schadler, T. Borca-Tasciuc and P.M.Ajayan, "Novel Metallic Substrate Mediated Growth of Aligned CNT Films and its Thermal Transport on Metal-NT Interface" MRS Fall Meeting, Boston, (2006).
20. N.Punbasayakul, S.Talapatra, L. Ci, W. Surareungchai and P.M.Ajayan "Electrochemical Sensing Properties of Ultra Long Aligned Multi-Walled Carbon Nanotube Microelectrodes" MRS Fall Meeting, Boston, (2006).
21. Lijie Ci, S.Talapatra, N. Punbusayakul, R.Vajtai and P. M. Ajayan "Multifunctional Macro Architectures of Double-walled Carbon Nanotube Fibers" MRS Fall Meeting, Boston, (2006).
22. A. Vijayaraghavan, S. Kar , C. Soldano, S.Talapatra, R. Vajtai, R. Krupke , O. Nalamasu and P. M. Ajayan, "Origin and modelling of hysteresis in gate-modulated transport in Single-Wall Carbon Nanotubes" NT-06, (2006).
23. N.Punbasayakul, S.Talapatra, L. Ci, W. Surareungchai and P.M.Ajayan "Electrochemical properties of macro architectures of carbon nanotubes" ECS Meeting, Boulder, CO (2006).
24. S.Talapatra, T. Kim, R. Vajtai, S. Kar, Ji Yu Chen, M. Shima, P. Ajayan, M. Huang D. Srivastava "Defect induced magnetism in carbon nanostructures" March Meeting of the American Physical Society, 13-17 March, Baltimore MD (2006).
25. M. Padi, S. Talapatra, X. Tang, T. Kim, R. Vajtai, G.V.S. Sastry, M. Shima, P. Ajayan "Synthesis and Characterization of Magnetic Alloy Nanowire Arrays" March Meeting of the American Physical Society, 13-17 March, Baltimore MD (2006).
26. S. Kar, S. Talapatra, A. Vijayaraghavan, C. Soldano, R. Vajtai S.K. Nayak, O. Nalamasu, P.M. Ajayan "Hysteresis in single-walled carbon nanotube field-effect transistors: Experiments, a model, and implications" March Meeting of the American Physical Society, 13-17 March, Baltimore MD (2006).
27. S. Kar, A.Vijayaraghavan, S.Talapatra, C. Soldano, S.K. Nayak, O. Nalamasu, P. M. Ajayan "Origin of hysteresis in gate-modulated transport in single-wall carbon nanotubes" March Meeting of the American Physical Society, 13-17 March, Baltimore MD (2006).
28. Y. Zhang, S. Talapatra, S. Kar, R. Vajtai, S. Nayak, P.M. Ajayan "Interplay of Vacancy Defects and Magnetism in Carbon Structures" March Meeting of the American Physical Society, 13-17 March, Baltimore MD (2006).
29. R. Vajtai, S. Talapatra, S. K. Biswas, S.M. Lastella, A. Vijayaraghavan, S. Kar, M. Terrones and P. M. Ajayan "Electronic and Magnetic Properties of Carbon Nanomaterials" XIV International Materials Research Congress Cancun, Mexico, 21-25 Augustus, (2005).
30. S. Talapatra, T. Kim, J. Cheng, M. Shima, M. Huang, R. Vajtai and P. M. Ajayan "Defect induced magnetism in nanodiamonds" MRS Fall Meeting, Boston, Abstract Book, Pg 145, (2004).
31. A. Srivastava, O. N. Srivastava, S. Talapatra, R. Vajtai and P. M. Ajayan "Carbon nanotube filters" MRS Fall Meeting, Boston, Abstract Book, Pg 293, (2004).
32. S. Talapatra, R. Ma, Y. Y. Choi, N. Chakrapani, B. Q. Wei, A. Cao, R.Vajtai and P. M. Ajayan "Structural modification of nanodiamonds to Onion like carbon" MRS Fall Meeting, Boston, Abstract Book, Pg 463, (2003).

33. A. Cao, A. Filin, S. Talapatra, R. Vajtai, P. Persans and P. M. Ajayan "Tailoring the optical excitation of single walled carbon nanotubes" MRS Fall Meeting, Boston, Abstract Book, Pg 401, (2003).
34. D. S. Rawat, S. Talapatra, A. D. Migone and K. Lafdi "H<sub>2</sub> and N<sub>2</sub> Adsorption on Activated-Nanofiber-Doped Carbon Liquid Crystals" March Meeting of the American Physical Society, 2-7 March, Austin, TX, A. P. S. Bulletin, **48**,(2003).
35. V. Krunglevichute, S. Talapatra and A. D. Migone, "Adsorption isotherm study of neon on the outer surface of SWNT bundles" March Meeting of the American Physical Society Meeting, 2-7, Austin, TX, A. P. S. Bulletin, **48**,(2003).
36. S. Talapatra and A. D. Migone, "Hydrogen adsorption on SWNT bundles" March Meeting of the American Physical Society, 18-22 March, IN, A. P. S. Bulletin, **47**,1158,(2002).
37. S. Talapatra, V. Krunglevichute and A. D. Migone "Higher coverage gas adsorption on the surface of carbon nanotubes" Proceedings of III rd International workshop on the science and application of nanotubes. NT-02, July, Boston, USA, (2002).
38. S. Talapatra, N. Dolan and A. D. Migone "Xenon adsorption on the outer surface of SWNT Bundles" Proceedings of II nd International workshop on the science and application of nanotubes. NT-01, 22-25 July, Potsdam, Germany, (2001).
39. A. J. Zambano, W. McMillan, S. Talapatra, G. Shaughnessy, A. D. Migone, "Adsorption studies of xenon on carbon nanohorns" Proceedings of II nd International workshop on the science and application of nanotubes. NT-01, 22-25 July, Potsdam, Germany, (2001).
40. D. S. Rawat, S. Talapatra and A. D. Migone "Adsorbed phases of Argon on SWNT bundles" March Meeting of American Physical Society, 18-22 March, IN, A. P. S. Bulletin, **47**, 1088, (2002).
41. S. Talapatra and A. D. Migone, "Adsorption studies of carbon Nanotubes" CNT 10 Tsukuba Carbon Nanotube Symposium: 10th Anniversary of Nanotube Discovery", Tsukuba, Japan, (2001).
42. S. Talapatra, A. Zambano, N. Dolan and A. D. Migone, "Stage wise filling of various gases on single walled carbon nanotubes" March Meeting of the American Physical Society, 12-16 March, Seattle, WA; A. P. S. Bulletin, **46**, 1167 (2001).
43. W. Mcmillin et. al. "Adsorption studies of Xenon on carbon nanohorns" March Meeting of the American Physical Society, 12-16 March, Seattle, WA; A. P. S. Bulletin, **46**, 1168 (2001).
44. S. Talapatra, A. Zambano and A. D. Migone, "Low coverage adsorption studies of neon on SWNT bundles" March Meeting of the American Physical Society, 19-26 March, Minneapolis, MN; A. P. S. Bulletin, **45**, 827 (2000).
45. S. E. Weber, S. Talapatra, A. Zambano and A. D. Migone, "Binding energy of methane on SWNT bundles" March Meeting of the American Physical Society, 19-26 March, Minneapolis, MN; A. P. S. Bulletin, **45**, 827 (2000).
46. A. Zambano, S. Talapatra and A. D. Migone, "Binding energy determination of xenon on the IC spaces of SWNT" March Meeting of the American Physical Society, 19-26 March, Minneapolis, MN; A. P. S. Bulletin, **45**, 827 (2000).
47. S. E. Weber, S. Talapatra, C. Journet, and A. D. Migone "Low coverage adsorption of methane on single walled nanotubes: a direct approach to binding energy measurement". *Science and Application of Nanotubes* ed By D.Tomanek and R.J.Enbody, pg. **215**, Kluwer Academic/Plenum Publishers, New York (2000)

**I. Selected talks (18/28)**

1. "Emerging Applications of CNTs in Environment & Energy" (**Invited**), ASME Congress, Orlando, (2009)
2. "Synthesis and Applications of Carbon Nanostructures" (**Invited**), MSU, MO, USA (2009)
3. "Carbon Nanotubes: Their Impact on Future Technology" (**Invited**), SEMO, MO, USA (2009)
4. "Controlled Synthesis of Carbon Nanotubes" (**Invited**), AFRL, WPAFB, OH, USA (2007)
5. "Synthesis and Applications of Aligned CNT Structure" (**Invited**), UMKC, KA, USA (2007)
6. "Nanostructured Carbon: Their impact on Future Technology" (**Invited**), UToledo, OH, USA (2006)
7. "Synthesis, Assembly and Applications of Carbon Nanostructures" (**Invited**), SIUC, IL, USA (2006)
8. "Designing Nano-Structured Carbon for Energy Applications" (**Invited**), BNL, NY, USA (2005)
9. "Nanostructured Carbon: Their impact on Future Technology" (**Invited**), SUNY Albany, NY, (2005)
10. "Nanostructured Carbon: Their impact on Future Technology" (**Invited**), Drexel, PA, USA (2005)
11. "Carbon Nanostructures" (**Invited**), Dept. of Materials Science, IIT Bombay, India (2005)
12. "Nanostructured Materials" (**Invited**), Dept. of Metallurgy, Banaras Hindu University, India (2005)
13. "Carbon Nanostructures" (**Invited**), Dept. of Physics, Banaras Hindu University, India (2005)
14. "Carbon nanotube filters" Materials Research Society Fall Meeting (2004)
15. "Defect induced magnetism in nanodiamonds", MRS Fall Meeting, Boston (2004)
16. "Hydrogen adsorption on SWNT bundles" American Physical Society March Meeting (2002)
17. "Adsorption studies on carbon nanotubes" (**Invited**) Rensselaer Polytechnic Institute (2002)
18. "Xenon adsorption on the outer surface of SWNT Bundles" NT-01, Potsdam, Germany, (2001)

**J. Teaching**

Courses Taught:

Freshman/Sophomore Level:

PHYS 203B (University Physics, part B)

Junior/Senior Level:

PHYS 320 (Electromagnetism I)

PHYS 420 (Electromagnetism II)

Special Topics

PHYS 575

**K. Student supervision**

Undergraduate students advised:

Mr. Christopher Wolfe

Mr. Benjamin Turner

Mr. Herbert Vinson

Ms. Amelia Church (NSF REU 2007)

Mr. Clayton Schenk (NSF REU 2008)

Mr. Kevin Satinzer (NSF REU 2009)

Graduate students advised:

Mr. Rakesh Shah (MS Physics)

Ms. Amelia Church (MS Physics)

Mr. Sujoy Ghosh (currently enrolled in MS Physics program)

Mr. Balleeswarai Mucharla (currently enrolled in Applied Physics Ph.D. program)

Post-Doctoral Scholar mentored:

Dr. Xianfeng Zhang

**L. Dissertation/ Thesis Committee**

Chair /Director

Mr. Rakesh Shah (MS Physics 2008)

Ms. Amelia Church (MS Physics 2010)

Mr. Sujoy Ghosh (MS Physics)

Co-Advisor/Member

Mr. Dines Rawat (Ph.D. Dissertation, Applied Physics)



Ms. Vaiva Krunglevichute (Ph.D. Dissertation, Applied Physics)  
Mr. Gediminas Markevicius (Ph.D. Dissertation, Applied Physics)  
Mr. Murat Bulut (MS Thesis Physics)  
Mr. Moti Paudel (MS Thesis Physics)  
Mr. Gautam Bhoj (MS Thesis Physics)  
Mr. Yadav Paudel (MS Thesis Physics)  
Mr. Chiranjivi Lamsel (MS Thesis Physics)  
Mr. S. Sardar Iqbal (Ph.D. Dissertation, Engineering Science)  
Mr. Joseph Weaver (MS Thesis Chemistry)  
Ms. P. He (Ph. D. Dissertation, Chemistry)  
Ms. Deepti Anand (MS Thesis Civil and Environmental Engineering)

**M. Synergic activities, university/professional services**

1. Graduate Director/Advisor Department of Physics (2008, 2009).
2. Reviewer for scientific journals such as Nano Letters, Physical Review Letters, Physical Review B, Nanotechnology, IEEE Transactions in Nanotechnology, Langmuir, Carbon, Journal of Nanoscience and Nanotechnology, Electrochemical Solid State Letters.
3. Proposal Reviewer for
  - a. National Science Foundation -OISE
  - b. Oakridge Associated University
  - c. US- Israel Bi-national Foundation
  - d. University of Missouri Research Board
  - e. University of Kentucky Research Board
4. Represented Physics Department in College of Science commencement ceremony (2007, 2009).
5. Member of Faculty Search Committee Department of Physics (2007, 2008).
6. Member of Ph. D. Qualifying Exam Committee, Department of Physics (2008, 2009).
7. Member of NSF REU recruitment committee (2008, 2009, 2010).
8. Elected Departmental Representative for the SIUC Faculty Association (2008, 2009).

**N. Recent Collaborators**

*Intra-campus*

1. Prof. N. Ali (Physics)
2. Prof. S. Aouadi (Physics)
3. Prof. S. Ahmed (Electrical Engineering)
4. Prof. P. Kohli (Chemistry)
5. Prof. P. Philip (Mechanical Engineering)
6. Prof. X. Ma (Civil Engineering)
7. Prof. A. D. Migone (Physics)
8. Prof. K. Mondal (Mechanical Engineering)
9. Prof. M. Tsige (Physics)

*US Collaborators*

10. Prof. P. M. Ajayan (Rice University)
11. Prof. S. Kar (Rensselaer Polytechnic Institute)
12. Prof. S. Nayak (Rensselaer Polytechnic Institute)
13. Dr. R. Vajtai (Rice University)

14. Dr. B. Maruyama (WPAFB)

*International Collaborators*

15. Dr. N. Punbasayakul (Thailand)

16. Prof. G.V.S. Sastry (India)

17. Dr. C. Soldano (France)

18. Prof. O. N. Srivastava (India)