

# Curriculum Vitae - BHUVANA T

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## Personal Information

Name Bhuvana T  
Address 214 Northern Lab. I, Department of Mechanical Engineering, IIT Kanpur  
208016  
Contact Number 0512 259 6494  
E-Mail [bhuvana@iitk.ac.in](mailto:bhuvana@iitk.ac.in)

## Education

PhD in Chemical Sciences, (Integrated PhD programme) JNCASR, Bangalore - 2009  
Master of Science (with Thesis) in Chemical Sciences, JNCASR, Bangalore - 2006  
Bachelor of Science (Chemistry), Ethiraj College for Women, Chennai – 2003

## Research/Work Experience

Feb 2016 – present: INSPIRE faculty fellow  
July 2014 – Jan 2016: DST Young Scientist, IIT Kanpur  
Feb 2013 -Dec 2013: Scientist C, INST Mohali  
Sept 2010- Oct 2011: Postdoctoral research fellow at Yonsei University, South Korea  
Jan 2010 – June 2010: DST Postdoctoral fellow at IIT Kanpur  
Oct 2008 - Aug 2009: Postdoctoral research fellow at Purdue University, USA

## Fellowships/Grants

1. SERB Start-up Grant (Young Scientist): 2014 – 2017.
2. DST INSPIRE Faculty Fellowship: 2016 - 2021.

## Specialization and Expertise:

Nanolithography, nanomaterials, Electrodes for microfuel cells, bioplastics and Surface interaction between liquids and soft solids.

## Publications

### *Peer-reviewed international journals*

1. R. Kumar,<sup>#</sup> **T. Bhuvana**<sup>#</sup> and A. Sharma, Polyaniline wrapped Aminated Graphene composite on Nickel Foam as Three-Dimensional Electrodes for Enzymatic Microfuel Cell, RSC Advances, 6, 73496-73505, **2016** (<sup>#</sup>contributed equally).
2. A Reversible Artificial Chameleon with Yellow Electroactive Polymer Patterns, **T. Bhuvana**<sup>#</sup>, B. Kim<sup>#</sup>, X. Yang, H. Shin and E. Kim, *Angew. Chem. Int. Ed.*, 52, 1180-1184, **2013** (<sup>#</sup>contributed equally).
3. Electroactive Subwavelength Gratings (ESWGs) from Conjugated Polymers for Color and Intensity Modulation, **T. Bhuvana**, B. Kim, H. Shin and E. Kim, *Nanoscale*, 4, 3679-86, **2012**.

4. Color combination of conductive polymers for black electrochromism H. Shin, Y. Kim, **T. Bhuvana**, J. Lee, X. Yang, C. Park and E. Kim, *ACS Applied Materials & Interfaces*, 4, 185–191, **2012**.
5. Ultrafine ZnO nanowires grown on patternable Pd catalyst and their source-energy dependent photoluminescence, **T. Bhuvana** and G. U. Kulkarni, *International Journal of Nanoscience*, 10, 699-705, **2011**.
6. Metallic conduction in NiS<sub>2</sub> nanocrystalline structures, K. D. M. Rao†, **T. Bhuvana**†, B. Radha, N. Kurra, N. S. Vidhyadhiraja and G. U. Kulkarni, *Journal of Physical Chemistry C*, 115, 10462–10467, **2011** (†equally contributed).
7. Palladium Thiolate Bonding of Carbon Nanotube Thermal Interfaces, S. L. Hodson, **T. Bhuvana**, B. A. Cola, X. Xu, G. U. Kulkarni and T. S. Fisher, *Journal of Electronic Packaging*, 133, 020907, **2011**.
8. Inkjet Printing of Palladium Alkanethiolates for Facile Fabrication of Metal Interconnects and SERS substrates, **T. Bhuvana**, W. Boley, B. Radha, B. D. Dolash, G. Chiu, D. Bergstrom, R. Reifenberger, T.S. Fisher, and G.U. Kulkarni, *Micro & Nano Letters*, 5, 296–299, **2010**.
9. Contiguous Petal-like Carbon Nanosheet Outgrowths from Graphite Fibers by Plasma CVD, **T. Bhuvana**, A. Kumar, A. Sood, R. H. Gerzeski, J. Hu, V. S. Bhadram, C. Narayana and T. S. Fisher, *ACS Applied Materials and Interfaces*, 2, 644-648, **2010**.
10. Self-assembled CNT circuits with ohmic contacts using Pd hexadecanethiolate as in situ solder, **T. Bhuvana**, K. C. Smith, T. S. Fisher and G. U. Kulkarni, *Nanoscale*, 1, 271 - 275, **2009**.
11. Conducting nanocrystal patterns using a silver organic complex blended with polystyrene as e-beam resist, **T. Bhuvana**, C. Subramaniam, T. Pradeep and G. U. Kulkarni, *Journal of Physical Chemistry C* 113, 7038-7043, **2009**.
12. Femtoliter silver cups as SERS active containers, **T. Bhuvana** and G.U. Kulkarni, *Nanotechnology*, 20, 045504, **2009**.
13. The electron resist behavior of Pd hexadecanethiolate examined using X-ray photoelectron spectroscopy with nanometric lateral resolution, **T. Bhuvana**, S. Heun, L. Gregoratti and G. U. Kulkarni, *Langmuir*, 25, 1259-1264, **2009**.
14. Inhomogeneous vortex-state-driven enhancement of superconductivity in nanoengineered ferromagnet-superconductor heterostructures, R. K. Rakshit, R. C. Budhani, **T. Bhuvana**, V. N. Kulkarni, and G. U. Kulkarni, *Physical Review B*, 77, 052509, **2008**.
15. Polystyrene as a zwitter resist in electron beam lithography based electroless patterning of gold, **T. Bhuvana** and G. U. Kulkarni, *Bulletin of Materials Science*, 31, 201-206, **2008**.
16. A SERS-Active Nanocrystalline Pd Substrate and its Nanopatterning Leading to Biochip Fabrication, **T. Bhuvana** and G. U. Kulkarni, *Small*, 4, 670-676, **2008**.
17. Highly Conducting Patterned Pd Nanowires by Direct-Write Electron Beam Lithography, **T. Bhuvana** and G. U. Kulkarni, *ACS Nano*, 2, 457–462, **2008**.
18. Carbon assisted electroless gold for surface enhanced Raman scattering studies, **T. Bhuvana**, G. V. P. Kumar, Chandrabhas Narayana and G. U. Kulkarni, *Journal of Physical Chemistry C*, 111, 6700-6705, **2007**.
19. Nanogranular Au films deposited on carbon covered Si substrates for enhanced optical reflectivity and Raman scattering, **T. Bhuvana**, G. V. P. Kumar, Chandrabhas Narayana and G. U. Kulkarni, *Nanotechnology*, 18, 145702, **2007**.
20. Gold Nanostructuring on Si Substrate by Selective Electroless Deposition, **T. Bhuvana** and G. U. Kulkarni, *Journal of Nanoscience and Nanotechnology*, 7, 1–6, **2007**.
21. Optimizing growth conditions for electroless deposition of Au films on Si(111) substrates, **T. Bhuvana** and G. U. Kulkarni, *Bulletin of Materials Science*, 29, 505–511, **2006**.

### **Conference papers**

22. Fabrication of a single nanowire circuit made of semiconducting NiS<sub>2</sub> by direct-write electron beam lithography and observation of metallic conduction, G. U. Kulkarni and **T. Bhuvana**, *3rd International Nanoelectronics Conference (INEC) Proceedings*, 5424565, 117, **2010**.
23. Inkjet printing involving palladium alkanethiolates and carbon nanotubes functionalized with single-strand DNA, W. Boley, **T. Bhuvana**, B. Hines, G. Chiu, T. S. Fisher, D. Bergstrom, R. Reifengerger and G. U. Kulkarni *International Conference on Digital Printing Technologies*, 824-827, **2009**.
24. Palladium hexadecanethiolate bonding of carbon nanotube array thermal interfaces for high-temperature power electronics, S. L. Hodson, **T. Bhuvana**, B. A. Cola, X. Xu, G. U. Kulkarni and T. S. Fisher, Proceedings of InterPACK, San Francisco, USA, **2009**.

### **Patents**

1. Palladium Thiolate Bonding of Carbon Nanotubes. S. L. Hodson, T. Bhuvana, B. A. Cola, T. S. Fisher. U.S. Application No. 20110020539 (**2011**).

### **Selected publications:**

1. R. Kumar,<sup>#</sup> **T. Bhuvana**<sup>#</sup> and A. Sharma, Polyaniline wrapped Aminated Graphene composite on Nickel Foam as Three-Dimensional Electrodes for Enzymatic Microfuel Cell, *RSC Advances*, 6, 73496-73505, **2016** (<sup>#</sup>contributed equally).
2. A Reversible Artificial Chameleon with Yellow Electroactive Polymer Patterns, **T. Bhuvana**<sup>#</sup>, B. Kim<sup>#</sup>, X. Yang, H. Shin and E. Kim, *Angew. Chem. Int. Ed.*, 52, 1180-1184, **2013** (<sup>#</sup>contributed equally).
3. Contiguous Petal-like Carbon Nanosheet Outgrowths from Graphite Fibers by Plasma CVD, **T. Bhuvana**, A. Kumar, A. Sood, R. H. Gerzeski, J. Hu, V. S. Bhadram, C. Narayana and T. S. Fisher, *ACS Applied Materials and Interfaces*, 2, 644-648, **2010**.
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5. Highly Conducting Patterned Pd Nanowires by Direct-Write Electron Beam Lithography, **T. Bhuvana** and G. U. Kulkarni, *ACS Nano*, 2, 457-462, **2008**.
6. Carbon assisted electroless gold for surface enhanced Raman scattering studies, **T. Bhuvana**, G. V. P. Kumar, Chandrabhas Narayana and G. U. Kulkarni, *Journal of Physical Chemistry C*, 111, 6700-6705, **2007**.