

REETU SHARMA

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EDUCATION:

- **Ph.D.** (Specialization in Carbon Nano Tubes): Delhi Technological University, Delhi
Thesis Title: Synthesis of filled Carbon nanotubes and analysis of irradiation effects on their structural and magnetic properties (2011-2018)
- **Master of Technology** (Advanced Materials Science and Technology): National Institute of Technology, Durgapur, West Bengal (2009-2011)
- **Master of Science** (Physics): DBS College, Chhatrapati Sahu Jee Maharaj University, Kanpur, Uttar Pradesh (2005-2007)
- **Bachelor of Science** (Physics): Brahmanand College, Chatrapati Sahu Jee Maharaj University, Kanpur, Uttar Pradesh (2000-2003).

RESEARCH INTEREST:

Carbon nanomaterials, CVD growth of nanomaterials, Nano magnetism, Scanning probe microscopy, Electron and ion beam irradiation of nanomaterials.

RESEARCH PUBLICATIONS:

- 1) **Reetu Kumari**, Lucky Krishnia, Vinay Kumar, Sandeep Singh, H K Singh, R K Kotnala, R R Juluri, U M Bhatta, P V Satyam, Brajesh S. Yadav, Zainab Naqvi, Pawan K. Tyagi, *Fe₃C-filled CNTs: permanent cylindrical nanomagnets possessing exotic magnetic properties*, **Nanoscale**, **8**, **2016**, **4299-4310**.
- 2) **R Kumari**, A Singh, BS Yadav, DR Mohapatra, A Ghosh, P Guha, P V Satyam, Manoj Kumar Singh, Pawan K. Tyagi. *Filled-CNTs: 1 D nanomagnets possessing uniaxial magnetization axis and reversal magnetization switching*, **Carbon** **119**, **2017**, **464-475**.
- 3) **Reetu Kumari**, Fouran Singh, Brajesh S. Yadav, Ravinder K Kotnala, Koteswara Rao Peta, Pawan K. Tyagi, Sanjeev Kumar, Nitin K. Puri. *Ion irradiation induced localized sp² to sp³ hybridized carbon transformation probed in CNT walls*, **Nuclear Inst. and Methods in Physics Research**, **B 412**, **2017**, **115-122**,
- 4) **Reetu Kumari**, Anshika Singh, Rajesh Kumar, Lucky Krishnia, Vinay Kumar, Nitin K. Puri, Pawan K. Tyagi. *Synthesis of Ni filled multiwalled CNTs and study of magnetic behaviour*, **Adv. Mater. Lett.** **7**, **2016**, **197-200**.
- 5) Pawan K. Tyagi, **Reetu Kumari**, Umananda M Bhatta, J. Raghavendra Rao, Ashutosh Rath, Sanjeev Kumar, P V Satyam, Subodh K. Gautam, Fouran Singh, *Potential application of CNT core as nanocontainer and nanoreactor*, **Nuclear Inst. and Methods in Physics Research B.** **379**, **2016**, **181-187**.
- 6) **Reetu Kumari**, Pawan K. Tyagi, Nitin K. Puri, *Work function and electrical properties of individual multiwalled CNT: influenced by nature of catalyst and substrate*, **Applied Physics A** **124**, **2018**, **446**.
- 7) **Reetu Kumari**, Pawan K. Tyagi, Nitin K. Puri, *Electron irradiation induced wall-to-wall joining of multiwalled CNTs*, **Applied Surface Science** **453**, **2018**, **153-158**, .
- 8) Anshika Singh, **Reetu Kumari**, Vinay Kumar, Lucky Krishnia, Zainab Naqvi, Amrisha K Panwar, Umananda M Bhatta, Arnab Ghosh, PV Satyam, Pawan K Tyagi, *Electron irradiation induced buckling, morphological transformation, and inverse Ostwald ripening in nanorod filled inside carbon nanotube*, **Applied Surface Science** **360**, **2016**, **1003-08**.

- 9) Lucky Krishnia, **Reetu Kumari**, Vinay Kumar, Anshika Singh, Preeti Garg, Brajesh S. Yadav, Pawan K. Tyagi, *Comparative study of thermal stability of filled and un-filled multiwalled carbon nanotubes*, **Advanced Materials Letters** **2016, 7, 230-234**.
- 10) Lucky Krishnia, Vinay Kumar, **Reetu Kumari**, Preeti Garg, Brajesh S Yadav, Ashutosh Rath, Arnab Ghosh, Ravindra K Sinha, Manoj Kumar Singh, Pawan K Tyagi, *Exclusive Endothermic Oxidation of Fe₃C-Filled Multi-Walled Carbon Nanotubes*, **Advanced Science, Engineering and Medicine** **8, 2016, 460**.
- 11) Vinay Kumar, Pranjala Tiwari, Lucky Krishnia, **Reetu Kumari**, Anshika Singh, Arnab Ghosh, Pawan K. Tyagi, *Green route synthesis of silicon/silicon oxide from bamboo*, **Advanced Materials Letters** **7, 2016, 271-276**.
- 12) Pranjala Tiwari, Kamlesh Patel, Lucky Krishnia, **Reetu Kumari**, Pawan K. Tyagi, *Potential application of multilayer n-type tungsten diselenide (WSe₂) sheet as transparent conducting electrode in silicon heterojunction solar cell*, **Computational Materials Science** **136, 2017 102 – 108**.
- 13) Sarvottam K Jha, **Reetu Kumari**, Shubham Choudhary, Puspendu Guha, PV Satyam, Brajesh S Yadav, Zainab Naqvi, SS Kushvaha, RK Ratnesh, MS Mehata, Aditya Jain, Amrish K Panwar, Fouran Singh, Pawan K Tyagi, *Facile Synthesis of Semiconducting Ultrathin Layer of Molybdenum Disulfide*, **Journal of nanoscience and nanotechnology** **18, 2018, 614-22**.

HONORS AND AWARDS:

- National Postdoc fellowship (NPDF) by Science and Engineering Research Board (SERB).
- Awarded with **commendable research award** for excellence in research by Delhi Technological university (DTU).
- Appreciated for **active and massive contribution** in organizing 3 days (1-3rd July 2017) conference “10th National Conference on Solid State Chemistry and Allied Areas (ISCAS-2017)”. This successful conference was organized by my supervisor Dr. Pawan Kumar Tyagi and held at department of physics, Delhi Technological University *in association* with Indian Association of Solid-State Chemists and Allied Scientists.
- Achieved **best poster presentation prize** in seminar on “Frontiers in Material Science-2010 (FMSc-2010)”.
- Qualified Graduate aptitude test in Engineering (GATE) in 2009.

MEMBERSHIP:

- Ion Beam Society of India (IBSI).

CONFERENCES/SEMINARS/WORKSHOPS:

- 1) **3rd International Conference on Physics at Surface and Interfaces (PSI 2014)**
Study of magnetic behavior and growth mechanism of iron carbide nanorod encapsulated CNTs.
Reetu Kumari, Lucky Krishnia, Vinay Kumar, Anshika Singh, Sandeep Singh, H K Singh, R K Kotnala, Arnab Ghosh, P V Satyam, Brajesh S. Yadav, N.K. Puri, Pawan K. Tyagi
- 2) **18th International Conference on Radiation Effects in Insulators (REI-18)-2015**
Structural changes in cobalt filled CNTs irradiated with Au⁺⁸ ion beam.
Reetu Kumari, Fouran Singh, Arnab Ghosh, P V Satyam, Nitin K. Puri, Pawan K. Tyagi
- 3) **International Conference on Materials Science & Technology (ICMTECH-2016)**
Growth Mechanism Of Filled Carbon Naotubes.
Reetu Kumari, Pawan K. Tyagi
- 4) **2nd International Conference on Recent Advances in Nanosciences and Nanotechnology (ICRANN-2016)**

Quantitative estimation of magnetization in individual magneticnanorod confined inside CNT with magnetic force microscopy.

Reetu Kumari, Brajesh S. Yadav, Arnab Ghosh, P V Satyam, Nitin K. Puri, Pawan K. Tyagi

5) International Conference on Materials Engineering and Nano Sciences (ICMENS 2017)

Joining of Cobalt filled CNTs by their side-walls under electron beam irradiation.

Reetu Kumari, Arnab Ghosh, P V Satyam, Brajesh S. Yadav, Pawan K. Tyagi.

6) 9th National Conference on Solid State Chemistry and Allied Areas (ISCAS-2015)

Synthesis of Ni filled CNTs and study of magnetic behaviour

Reetu Kumari, Rajesh Kumar, Lucky Krishnia, Vinay Kumar, Anshika Singh, Brajesh S. Yadav, Nitin K. Puri, Pawan K. Tyagi.

7) 10th National Conference on Solid State Chemistry and Allied Areas (ISCAS-2017) Magnetic force microscopy probed estimation of magnetic moment of ferromagnetic nanorod encapsulated inside CNT

Reetu Kumari, Nitin K. Puri, Pawan K. Tyagi.

8) National Seminar on Recent Advances in Physics (NSRAP-2015) on 16th February 2015 at Delhi Technological University, New Delhi.

9) TEQIP Sponsored Faculty Development Programme “Advances in microelectronics and Plasma Diagnostics” from 29th August to 02nd September 2016 at Delhi Technological University, New Delhi.

10) Seminar on Frontiers in Material Science-2010 (FMSc-2010)

Optical properties of silver nanoparticles synthesized by using Parthenium extract.

Reetu Kumari, R. Sarkar, P. Kumbhakar.

11) International Symposium on Advances in Nanomaterials (ANM-2010).

Green Process of Synthesis of Silver Nanoparticles Using Parthenium Leaf Extract.

Reetu Kumari, R. Sarkar, P. Kumbhakar and A.K. Mitra.