

Curriculum vitae

Sumit Saxena, PhD, MRSC, MIMMM

¹ Nanostructures Engineering and Modeling Lab

Dept. of Metallurgical Engg. & Materials Sc.

² Center for Research in Nanotechnology & Science (CRNTS)

³ Water Innovation Center: Technology Research & Education (WICTRE)

⁴ IITB - Monash research Academy

⁵ IIT Bombay - Ohio State Frontier Science and Engineering Research Center

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<http://wictre.iitb.ac.in/pdf/people/sumit.pdf>

<https://scholar.google.com/citations?user=9rgUNL0AAAAJ&hl=en&oi=ao>

https://www.researchgate.net/profile/Sumit_Saxena5

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Education

- 1) PhD: 4.0/4.0; 2005 – 2010 (August 2010); New Jersey Institute of Technology, Newark, NJ, USA; Materials science program (Dept. of Physics).

Thesis – Atomic and electronic structure studies of nano-structured systems: Carbon and related materials.

Advisor – Professor Trevor A. Tyson (Dept. of Physics, New Jersey Institute of Technology)

- 2) M.Sc.: 7.0/10; 1999 – 2001; Indian Institute of Technology, Kanpur, India; Physics.

Professional Experience

- 1) **Associate Professor (12/2016 – to date), Indian Institute of Technology Bombay**, Powai, Mumbai, MH, India; Department of Metallurgical Engineering and Materials Science
- 2) **Assistant Professor (01/2012 – 11/2016), Indian Institute of Technology Bombay**, Powai, Mumbai, MH, India; Department of Metallurgical Engineering and Materials Science
- 3) **Postdoctoral Fellow (02/2011-12/2011)**, *Harvard University, Cambridge*, MA, USA; Department of Physics
- 4) **Postdoctoral Research Associate (11/2010 – 02/2011)**, *University of Illinois at Urbana Champaign (UIUC)*, IL, USA; Department of Materials Science and Engineering
- 5) **Senior Project Associate (03/2004 - 07/2005)**, *Indian Institute of Technology - Kanpur*, India; Center for laser Technology (CELT)
- 6) **Assistant Scientist (02/2003 - 11/2003)**, *Gesellschaft für Schwerionenforschung mbH (GSI), Darmstadt*, Germany; Atomic Physics; and *European Organization for Nuclear Research (CERN), Geneva*, Switzerland

Publications

Journal publications:-

- 1) "Engineered coronal nanohybrids with intricate graphene based nanowebbs for efficient energy storage" Sarigamala Karthik Kiran, Shobha Shukla, Alexander Struck and **Sumit Saxena**, *submitted*
- 2) " β -Cyclodextrin functionalized rGO films for heavy metal sensing" Madhurima Deb, **Sumit Saxena**, Rajdip Bandopadhyaya and Shobha Shukla, *submitted*
- 3) "H- and T- Li₂O monolayers: Latest addition to 2D flatlands" Basant Roondhe, Sankar P. Sanyal, Shobha Shukla and **Sumit Saxena**, *under peer review*
- 4) "Siloxene: A novel 2D photocatalyst for efficient decolouration" Nav Deepak, Abhishek Pandey, Shobha Shukla and **Sumit Saxena**, *submitted*
- 5) "Microwave-assisted cooking of N-CQD and its physiochemical properties" Arun Kumar Jaiswal, Gaurav Singh, Kiran P. Shejale, **Sumit Saxena** and Shobha Shukla, *under peer review*
- 6) "Study of thermal, structural and electrochemical properties of LiMn₂O₄ and LiMn_{1.9}Cu_{0.05}Fe_{0.05}O₄ cathode material for lithium ion battery application" Paulos Taddesse Shibeshi, **Sumit Saxena**, Vijaya Babu K., Negussie Tadege Demeke, *submitted*
- 7) "Core-shell α -Fe₂O₃-mix phase TiO₂ nanocubes as highway for electron transport with efficient energy harvesting" Kiran P. Shejale, **Sumit Saxena** and Shobha Shukla, **Molecular System Design and Engineering**, 5, 797 (2020). [\[Invited Article\]](#)
- 8) "Evaluation of water remediation techniques from antibiotic contaminants using activated carbon" Kiran P. Shejale, Dharmveer Yadav, Harshala Patil, **Sumit Saxena** and Shobha Shukla, **Molecular System Design and Engineering** 5, 743 (2020). [\[Invited Review\]](#)
- 9) "Spin filtering in oxidized zigzag graphene nanoribbons" Vipin Kumar, Venkata Sai Pavan Choudary Kolli, Shobha Shukla and **Sumit Saxena**, **Diamond and Related Materials**, 102, 107662 (2020).
- 10) "Surface enhanced 3D rGO hybrids and porous rGO nano-networks as high performance supercapacitor electrodes for integrated energy storage devices" S. K. Kiran, Shobha Shukla, A. Struck and **S. Saxena**, **CARBON**, 158, 527 (2020).
- 11) "Quantum conductance in edge functionalized stanene nanoribbons: A first principles study" Vipin Kumar, Shobha Shukla and **Sumit Saxena**, **Physica E**, 114, 113595 (2019)
- 12) "Surface engineering of graphene oxide shells using lamellar LDH nanostructures" Sarigamala Karthik Kiran, Shobha Shukla, Alexander Struck and **Sumit Saxena**, **ACS Applied Materials and Interfaces**, 11, 20232 (2019).
- 13) "Synthesis and patterning of graphene: Strategies and prospects" Shobha Shukla, Seung-Yeon Kang and **Sumit Saxena**, **Applied Physics Reviews** 6, 021311 (2019). [\[Invited Review\]](#)
- 14) "Rationally engineered 3D dendritic cell like morphologies of LDH nanostructures using graphene based core-shell structures" Sarigamala Karthik

- Kiran, Shobha Shukla, Alexander Struck and Sumit Saxena, *Nature Microsystems & Nanoengineering*, 5, 65 (2019).
- 15) "Optical properties of TAG co-doped with Ce and Eu" S. Rani, B. Lal, S. Saxena and S. Shukla, *Bulletin of Materials Science*, 42, 144 (2019).
 - 16) "Predicting double negativity using transmitted phase in a space coiling metamaterial" Santosh K. Maurya, Abhishek Pandey, Shobha Shukla and Sumit Saxena, *Royal Society Open Science* 5, 171042 (2018).
 - 17) "3D Oxidized Graphene Frameworks: An Efficient Adsorbent for Methylene Blue" Abhishek Pandey, Madhurima Deb, Shreya Tiwari, Pranav Bhagwan Pawar, Sumit Saxena and Shobha Shukla, *Journal of Materials* 70, 469 (2018).
 - 18) "Sub-wavelength lithography of complex 2D and 3D nanostructures without two-photon dyes" Raghvendra Pratap Chaudhary, Arun Jaiswal, Govind Ummethala, Suyog Hawal, Sumit Saxena and Shobha Shukla, *Additive Manufacturing* 16, 30, (2017).
 - 19) "Localized polymerization using single photon photoinitiators in two-photon processes for fabricating subwavelength structures" Govind Ummethala, Arun Jaiswal, Raghvendra Pratap Chaudhary, Suyog Hawal, Sumit Saxena and Shobha Shukla, *Polymer* 117, 364, (2017).
 - 20) "Quantification of adsorption of azo dye molecules on graphene oxide using optical spectroscopy" Raghvendra Pratap Chaudhary, Pranav Bhagwan Pawar, Kumar Vaibhav, Sumit Saxena and Shobha Shukla, *JOM* 69(2), 236 (2017).
 - 21) "Electronic transport in oxidized zigzag graphene nanoribbons" Venkata Sai Pavan Choudhary Kolli, Vipin Kumar, Shobha Shukla and Sumit Saxena, *MRS Advances* 2, 97 (2017).
 - 22) "Photoluminescence properties of Gd:ZnO nano phosphor" Suman Rani, Bansi Lal, Sumit Saxena and Shobha Shukla, *J. Sol-Gel Sci. Technol.* 81, 586 (2017).
 - 23) "Double negativity in 3D space coiling metamaterials" Santosh Kumar Maurya, Abhishek Pandey, Shobha Shukla, and Sumit Saxena, *Scientific Reports (Nature publishing group)* 3, 33683 (2016).
 - 24) "One step direct sub-wavelength patterning of plasmonic gratings in metal-polymer composites" R P Chaudhary, Govind Ummethala, Arun Jaiswal, Suyog R Hawal, Sumit Saxena and Shobha Shukla; *RSC Advances* 6, 113457 (2016).
 - 25) "Optical properties of stanene" Raghvendra Pratap Chaudhary Sumit Saxena and Shobha Shukla *Nanotechnology (IOP)* , 27, 495701 (2016).
 - 26) "Graphene oxide – polyvinyl alcohol nanocomposite based electrode material for supercapacitors" Pranav Bhagwan Pawar, Shobha Shukla, and Sumit Saxena, *Journal of Power Sources*, 321, 102 (2016).
 - 27) "Stanene: atomically thick free-standing layer of 2D hexagonal tin" Sumit Saxena, Raghvendra Pratap Chaudhary and Shobha Shukla, *Scientific Reports* 6, 31073 (2016).
 - 28) "Synthesis of self-assembled large area films of complex hierarchical PZT clusters" Raghvendra Pratap Chaudhary, Sumit Saxena, Amit Kumar, Rajesh Bharadwaj and Shobha Shukla, *Materials Research Express*, 3, 025006 (2016).

- 29) “Water purification using graphene covered micro-porous, reuseable carbon membrane”, Pranav Bhagwan Pawar, Santosh K Maurya, Raghvendra Pratap Chaudhary, Dhanashree Badhe, Sumit Saxena and Shobha Shukla, **MRS Advances** 1, 1411 (2016).
- 30) “3D oxidized graphene frameworks for efficient nano sieving” Pranav Bhagwan Pawar, **Sumit Saxena**, Dhanashree Kamlesh Badhe, Raghvendra Pratap Choudhary and Shobha Shukla, **Scientific Reports**, 6, 21150 (2016).
- 31) “Hydrogen generation via photoelectrochemical water splitting using chemically exfoliated MoS_2 layers” R. K. Joshi, S. Shukla, **S. Saxena**, G. -H lee, V. Sahajwalla and S. Alwarappan **AIP Advances**, 6, 015315 (2016).
- 32) “Structural, optical investigations of graphene from graphene oxide using green method” Dinesh Kumar, Shobha Shukla and **Sumit Saxena** **AIP conf. proc.** 1665, 050050 (2015).
- 33) “Optical properties of few layered graphene quantum dots” Raghvendra Pratap Choudhary, Shobha Shukla, Kumar Vaibhav, Pranav Bhagwan Pawar and **Sumit Saxena**, **Materials Research Express**, 2, 095024 (2015).
- 34) “Looking beyond single electron extraction in cathode materials for lithium ion batteries” Anish Suresh Sankhe, **Sumit Saxena**, Priya Shrivastava and Shobha Shukla, **Journal of Power Sources**, 279, 563 (2015).
- 35) “2D and 3D acoustic metamaterials using space coil design” Santosh Kumar Maurya, Manu Sahay, Shobha Shukla and **Sumit Saxena**, Proceedings of the Materials Research Society fall meeting **2013**, Boston, USA
- 36) “Plasmonic micro lens for extraordinary transmission of broadband light” **Sumit Saxena**, Raghvendra Pratap Chaudhary, Abhay Singh, Saurabh Awasthi and Shobha Shukla, **Scientific Reports**, 4, 5586 (2014).
(Highlighted research on www.Nature.com under physical Sciences category)
- 37) “Terahertz response of a Split Ring Based Metamaterials” Raghvendra Pratap Chaudhary, **Sumit Saxena**, Shobha Shukla; *Proceedings of the National Conference on Advanced Materials* **2014**, India
- 38) “Optical antenna for wireless communication” Abhay Singh, Prosoon Meena, **Sumit Saxena**, Shobha Shukla; Proceedings of the Materials Research Society fall meeting **2013**, Boston, USA
- 39) “Self assembly of large area 3D photonic crystals” S Ahirwar, **S Saxena**, S Shukla, **Photonics 2012**, IEEE Fiber Optics and Photonics (PHOTONICS), 2012 International Conference on, Chennai, 2012, pp.1-3.
- 40) “Investigation of optical properties of layered MoS_2 ” Shobha Shukla, **Sumit Saxena** and Eric Mazur, Technical Proceedings of Nanotechnology Conference and Trade Show, Nanotech 2012, Santa Clara, CA, USA
- 41) * “Insights on the atomic and electronic structure of boron nanoribbons” **Sumit Saxena** and Trevor A. Tyson, **Phys. Rev. Lett.**, 104, 245502 (2010). *(Also*

published in Virtual journal of Nanoscience and Technology 21 (26) under section "Structural Properties", 2010).

- 42) "Spectroscopic investigation of confinement effects on optical properties of graphene oxide" Shobha Shukla and **Sumit Saxena** *Appl. Phys. Lett.*, 98, 073104 (2011).
- 43) "Interacting quasi-two dimensional sheets of interlinked carbon nanotubes: A high pressure phase of carbon." **Sumit Saxena** and Trevor A. Tyson, *ACS Nano*, 4(6), 3515 (2010).
- 44)* "Ab-initio density functional studies of the restructuring of graphene nanoribbons to form tailored single walled carbon nanotube." **Sumit Saxena** and Trevor A. Tyson, *CARBON*, 48(4), 1153 (2010). (*Article published in Graphene times*).
- 45) "Local electronic structure of graphene oxide" **Sumit Saxena**, Trevor A. Tyson and Ezana Negusse, *J. Phys. Chem. Lett.*, 1, 3433 (2010).
(Also published in virtual special issue published by *The Journal of Physical Chemistry C, Physical Chemistry of Graphene and Functionalized Graphene, volume(1), issue(1)*)
- 46) "Investigation of structural and electronic properties of graphene oxide" **Sumit Saxena**, Trevor A. Tyson, Shobha Shukla, Ezana Negusse, Haiyan Chen and Jaimin Bai, *Appl. Phys. Lett.* 99, 013104 (2011).
- 47) "Citrate - nitrate route for the synthesis and characterization of TAG using sol-gel techniques", **Sumit Saxena**, Archana Asokkumar K. and Bansi Lal, *J. Sol-Gel Sci. Techn.*, 41(3), 245 (2006).
- 48) "Sol-gel preparation and optical characterization of $TbxY3-xAl5O12$ ", **Sumit Saxena**, *Mater. Lett.*, 60(11) 1315 (2006).
- 49) "Masses along the rp-process path and large scale surveys on Cu, Ni and Ga with ISOLTRAP", F. Herfurth; G. Audi; D. Beck; K. Blaum; G. Bollen; P. Delahaye; C. Guénaut; A. Kellerbauer; H.-J. Kluge; D. Lunney; D. Rodriguez; **S. Saxena**; S. Schwarz; L. Schweikhard; G. Sikler, C. Yazidjian; *Nucl. Phys. A* 746, 487 (2004).

Conference Presentations and Proceedings:-

- 1) "Efficient filtration of methylene blue dye using 3D Oxidized Graphene Frameworks" by A. Pandey, M. Deb, P. Pawar, S. Shukla, S. Saxena, ACES, Bhopal, India (2020)
(AwarDED best poster presentation)
- 2) "Surface Engineered 3D hybrids of Ni-Co LDH@rGO for Supercapacitors" by Sarigamala Karthik Kiran, Shobha Shukla, Alexander Struck and **Sumit Saxena**, ACES, IISER, Bhopal, India (2020)
(AwarDED best oral presentation)
- 3) "Dyeless Multiphoton Patternable Resin Composition for Fabrication of Subwavelength Microstructures" by A. Jaiswal, S. Rani, Gaurav Pratap Singh, **S. Saxena** and S. Shukla, ACES, Bhopal (2020)

- 4) *"Heavy Metal Sensing Using Reduced Graphene Oxide Based Chemiresistive Sensor"* by Madhurima Deb, **Sumit Saxena**, Rajdip Bandyopadhyaya and Shobha Shukla, ACES, IISER, Bhopal, India (2020)
- 5) *"Fabrication of hierarchical 3D-flower like LDH nanostructures using graphene based core shells for supercapacitor application"* by Sarigamala Karthik Kiran, Shobha Shukla, Alexander Struck and **Sumit Saxena**, ICSEA, C-MET, Thrissur, India (2019)
(Awarded best oral presentation)
- 6) *"Effect of Photoinitiator Concentration on the Structural Resolution in Two-Photon Lithography"* by A. Jaiswal, S. Hawal, **S. Saxena**, and S. Shukla, RMC, Pune, India (2019)
- 7) *"Hierarchically designed 3D-nanostructures using surface engineered graphene shells"* by Karthik Sarigamala, Shobha Shukla, Alexander Struck and **Sumit Saxena**; 235th ECS meeting, Dallas (TX), USA (2019)
- 8) *"Fabrication of hierarchical 3D-flower like LDH nanostructures using graphene-based core-shells for supercapacitor application"* Sarigamala Karthik Kiran, Shobha Shukla, Alexander Struck and **Sumit Saxena**; International Conference on Supercapacitors, Energy Storage & Applications; C-MET Thrissur, Kerala (2019)
(Awarded best oral presentation)
- 9) *"3D Oxidized graphene frameworks for efficient filtration of Methylene Blue Dyes"* Abhishek Pandey, Madhurima Deb, Pranav Bhagwan Pawar, Sumit Saxena and Shobha Shukla; 25th Raman memorial conference 2019, Pune University, Pune (02/2019)
- 10) *"Surface Engineered Graphene Shells for Hybrid Supercapacitors"* Sarigamala Karthik Kiran and **Sumit Saxena** *Carbon MEM: New Horizons, 4th International Carbon MEMS meeting, IIT Hyderabad (12/2018)*
- 11) *"Focusing of EM wave through square-microhole aperture"* Santosh Maurya, Suyog Hawal, R P Chaudhary, Shobha Shukla, **Sumit Saxena**; The 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics; META16 Conference, Torremolinos – Malaga, Spain (July 2016)
- 12) *"Transmitted phase: A yardstick for predicting extreme acoustic properties in space-coiling metamaterials"* Santosh K Maurya, Abhishek Pandey, Shobha Shukla, and **Sumit Saxena** The 9th international conference on nanophotonics (ICNP2016), Taipei, Taiwan
- 13) *"Investigation of plasmonic contributions in extraordinary transmission through microhole"* Suyog R Hawal, Santosh Kumar Maurya, Raghvendra Pratap Chaudhary, Tushar Karnik, Rohit Jain, Saurabh Awasthi, **Sumit Saxena**, and Shobha Shukla The 9th international conference on nanophotonics (ICNP2016), Taipei, Taiwan
- 14) *"Two-photon lithography of subwavelength 2D and 3D structures in composite matrix"* Raghvendra Pratap Chaudhary, Arun Jaiswal, Suyog Rajendra Hawal, Shobha Shukla, and Sumit Saxena The 9th international conference on nanophotonics (ICNP2016), Taipei, Taiwan

- 15) “*Graphene oxide nanocomposite for supercapacitor electrode*” Pranav Bhagwan Pawar, **Sumit Saxena**, Siddhartha Suman, and Shobha Shukla 229th ECS meeting, San Diego, CA, USA
 - 16) “*Optical properties of Stanene*” Raghvendra P. Chaudhary, **Sumit Saxena**, and Shobha shukla Materials Research Society fall meeting 2015, Boston, MA, USA
 - 17) “*Water purification using graphene covered micro-porous reusable carbon membrane* ” Pranav B. Pawar, Santosh K. Maurya, Raghvendra P. Chaudhary, Dhanashree Badhe, **Sumit Saxena**, and Shobha Shukla, Materials Research Society fall meeting 2015, Boston, MA, USA
 - 18) “*Synthesis and characterization of PZT Micro/Nanostructure for omni-directional energy harvesting*” Rajesh Bhardwaj, Pranav B. Pawar, Raghvendra P. Chaudhary, Shobha shukla and **Sumit Saxena** Materials Research Society fall meeting 2015, Boston, MA, USA
 - 19) “*First principles investigation of Na substituted orthosilicates as cathode materials for Li-ion battery*” Anish Suresh Sankhe, Priya Shrivastava, Shobha shukla and **Sumit Saxena**, Materials Research Society fall meeting 2014, Boston, MA, USA
 - 20) “*2D and 3D acoustic metamaterials using space coil design*” Santosh Maurya, Manu Sahay, Rohit Singh Solanki, Shobha shukla and **Sumit Saxena**, Materials Research Society fall meeting 2014, Boston, MA, USA
- (Nominated for best poster award)**
- 21) “*Polarization independent broadband plasmonic electromagnetic microlens*” Raghvendra Pratap Chaudhary, Saurabh Awasthi, Abhay Singh, **Sumit Saxena** and Shobha shukla, Materials Research Society fall meeting 2014, Boston, MA, USA
 - 22) “*Acetone sensor based on SnO₂ quantum dots decorated on graphene*” Rajneesh Kumar Mishra, Raghvendra Pratap Chaudhary, Shobha Shukla and **Sumit Saxena**, Materials Research Society fall meeting 2014, Boston, MA, USA
 - 23) “*Graphene oxide: High performance supercapacitor electrode material*” Pranav Pawar, Rakesh Meena, Shobha shukla and **Sumit Saxena**, Materials Research Society fall meeting 2014, Boston, MA, USA
 - 24) “*Structural, Optical Investigations of Graphene from Graphene Oxide using Green Method*” Dinesh Kumar, Shobha Shukla and **Sumit Saxena**, 59th DAE Solid State Physics Symposium, 2014, VIT Vellore
 - 25) “*Tuning emission from rare-earth doped nano-sized zinc oxide phosphor for white light source*” Suman Rani, **Sumit Saxena**, Bansilal, EBAS – 2014, India
 - 26) “*Terahertz response of split ring based metamaterials*” Raghvendra Pratap Choudhary, **Sumit Saxena** and Shobha Shukla, National Conference on Advanced Materials, 2014
 - 27) “*First principles investigation of Ru based dyes for DSSC*” Nikhil Nagesh Patil, and **Sumit Saxena**, Materials Research Society fall meeting 2013, Boston, MA, USA

- 28) “*Plasmonic nanoantenna for wireless communications*”, Abhay Singh, Prasoon Meena, Shobha Shukla, and **Sumit Saxena**, Materials Research Society fall meeting 2013, Boston, MA, USA
- 29) “*Plasmonic electromagnetic lens: A highly achromatic and tunable superconcentrator*”, Abhay Singh, **Sumit Saxena**, and Shobha Shukla, Materials Research Society fall meeting 2013, Boston, MA, USA
- 30) “*Synthesis and characterization of PZT nanowires and thin films for nanogenerator applications*”, Amit Bishnoi, **Sumit Saxena**, and Shobha Shukla, International Conference on Advances in Energy Research (ICAER) 2013, Mumbai, MH, India
- 31) “*Plasmon enhanced EM waves for futuristic applications of wireless communication at nanoscale*” Abhay Singh, **Sumit Saxena**, and Shobha Shukla, ADNAM 2013, IIT Madras, India.
- 32) “*Self assembly of large area 3D photonic crystals*” S. Ahirwar, **Sumit Saxena**, and Shobha Shukla, Photonics 2012, The international Conference on Fiber Optics and Photonics 2012, IIT Madras, India
- 33) “*Investigation of gamma phonons in graphene oxide using Raman spectroscopy*” **Sumit Saxena**, Materials Research Society fall meeting 2012, Boston, MA, USA
- 34) “*Investigation of optical properties of layered MoS₂*” Shobha Shukla, **Sumit Saxena** and Eric Mazur, Nanotechnology Conference and Trade Show, Nanotech 2012, Santa Clara, CA, USA.
- 35) “*Patterning and reduction of graphene oxide using femtosecond-laser irradiation*” Christopher C. Evans, Shobha Shukla, **Sumit Saxena**, Seungyeon Kang, and Eric Mazur, Nanotechnology Conference and Trade Show, Nanotech 2012 Santa Clara, CA, USA.
- 36) “*Reconstruction of Real 3D Objects from 2D Images for Applications in Optical Lithography*” S. Venkat Lata, Shobha Shukla and **Sumit Saxena**, MAM-12, 6th International symposium on macro- and supramolecular architectures and materials, Coimbatore, India.
- 37) “*Electronic structure studies of graphene oxide*” by **Sumit Saxena** and Trevor A. Tyson, Materials Research Society fall meeting 2010.
- 38) “*Structural study of boron nanoribbons*” by **Sumit Saxena** and Trevor A. Tyson, Materials Research Society fall meeting 2010.
- 39) “*Atomic and electronic structure of graphene oxide*” by **Sumit Saxena**, Trevor A. Tyson, Shobha Shukla, Ezana Negusse, Haiyan Chen, Jaimin Bai and P.N. Prasad, proceedings of the American Physical Society march meeting 2010.
- 40) “*Effect of stone wales defects on the electronic structure of Silicon Nanoribbon*” by **Sumit Saxena** and Trevor A. Tyson, proceedings of the American Physical Society march meeting 2010.
- 41) “*Role of edge states in graphene nano ribbons: - DFT studies*” by **Sumit Saxena** and Trevor A. Tyson, proceedings of the American Physical Society march meeting 2009.

- 42) “*Electronic properties of boron nano ribbons: - DFT study*” by **Sumit Saxena** and Trevor A. Tyson, proceedings of the American Physical Society march meeting 2009.
- 43) “Pressure induced changes in the atomic and electronic structure of carbon nanotubes” by **Sumit Saxena** and Trevor A. Tyson, proceedings of the American Physical Society march meeting 2008.
- 44) “*Ab-initio study of metallic and semi-conducting carbon nanotubes*” by **Sumit Saxena** and Trevor A. Tyson, proceedings of the American Physical Society march meeting 2007.
- 45) “*Design and fabrication of diode pumped Nd: YAG single crystal fiber laser*” by **Sumit Saxena** and Bansi Lal, proceedings of National Laser symposium – 4, 2005.
- 46) * “*Preparation and characterization of nanoscaled terbium aluminum garnet by sol-gel techniques*” by **Sumit Saxena**, Archana Asokkumar and Bansi Lal, proceedings of National Laser symposium – 4, 2005.
- 47) “*Preparation and characterization of single crystal fibers of MgO:LiNbO₃ by laser heated pedestal growth technique*” by Archana Ashokkumar, **Sumit Saxena** and Bansi Lal, proceedings of National Laser symposium – 4, 2005.

Patents:- no. of patents filed-5

Books

- Hand book of Boron Nanostructures (in preparation) publisher – Pan Stanford Publishing.

Book Chapters

- Sarigamala Karthik Kiran, Martha Ramesh, Shobha Shukla and **Sumit Saxena** "Silicon materials for lithium-ion battery applications," *Lithium-ion Batteries: Materials and Applications*, Ed. Inamuddin, Rajender Boddula and Abdullah M. Asiri Millersville, Materials Research Forum
- **Sumit Saxena** "Introduction to Boron Nanostructures" *Hand book of Boron Nanostructures*, Ed. Sumit Saxena, Pan Stanford Publishing
- Saurabh Awasthi and **Sumit Saxena** "Introduction to Boron Nanostructures" *Hand book of Boron Nanostructures*, Ed. Sumit Saxena, Pan Stanford Publishing
- Basant Roonthe, Vaishali Sharma and **Sumit Saxena** "Theoretical and Computational Investigations of Carbon Nanostructures" *Carbon nanomaterial Electronics: Devices and Applications*, Ed. Arnab Hazra and Rupan Goswami, Springer Nature, Singapore Pvt. Ltd.

Invited Talks

- "Materials for Energy and Environment" IITB-NUS workshop at IIT Bombay (29-01-2019)
- "Towards Density Functional Based Approach for Designing Structural Materials" Discussion meeting on development of new steel (modeling and simulation) under the auspices of Materials panel, NRB, IIT Bombay (August 2018)
- "Introduction to Ab-initio Methods in Materials Science" Central Institute of Plastic Engineering and Technology, Lucknow, India (June 2018).
- "Graphene based materials and water purification" University of Sydney, Australia (April 2018)
- "Other 2D materials; Graphene and Applications" Global Initiative Center for Advanced Materials, University of New Castle (May 2018)
- "Density Functional Theory: An Introduction" Staff Development programme on *Recent Advances in Computational Techniques for Materials Engineering Practices (RACTMEP-2013) August 5th – 9th, 2013
- "Study of group IV 2D materials", International Conference on Nanomaterials and Nanotechnology, Allahabad, India
- "*Atomic and Electronic Structure Studies: Carbon and Boron Nanomaterials*" Dept. of Mechanical Engineering, Massachusetts Institute of Technology (MIT), Cambridge, MA, USA (July 2010).
- "*Atomic and Electronic Structure Studies of Nano-structured Systems: Carbon and Related Materials*" Dept. of Physics, University of Washington – Seattle, WA, USA (July 2010).

Reviewer Assignments

Peer review for the following journals

- Chemical Communications {Chem. Comm.} (Royal Society of Chemistry {RSC})
- Journal of Materials Chemistry (Royal Society of Chemistry {RSC})
- Physical Chemistry Chemical Physics {PCCP} (Royal Society of Chemistry {RSC})
- New Journal of Chemistry (Royal Society of Chemistry {RSC})
- CrysEngComm (Royal Society of Chemistry {RSC})
- CARBON (Elsevier)
- Journal of Physical Chemistry (American Chemical Society {ACS})
- Journal of Sol Gel Science and Technology (Springer)
- Journal of Alloys and Compounds (Elsevier)
- Scientific Reports (Nature Publishing group)
- Nano-Structures & Nano-Objects (Elsevier)

Proposal Review for

- Kerala State Council for Science, Technology and Environment
- Ministry for Human Resource Development, Government of India
- International reviewer for National Centre of Science and Technology Evaluation, Ministry of Education and Science, Republic of Kazakhstan

Membership of Professional bodies

- Member Royal Society of Chemistry, London, UK
- Member of Institute of Materials Minerals and Mining, UK
- Life member of Materials Research Society of India (MRSI)
- Life Member National Environmental Science Academy (NESA), India

Honors

- 1) **Fellow** of University of Birmingham India Institute.
- 2) Member of Royal Society of Chemistry (MRSC).
- 3) Member of the Institute of Materials, Minerals and Mining (MIMMM).
- 4) Life member of the National Environmental Science Academy, India
- 5) Young faculty award, IIT Bombay
- 6) Biography published in the 10th **Anniversary Edition** of **Marquis Who's Who in Science and Engineering**.
- 7) **Adjunct Faculty Member** (2014 -), Lovely Professional University, Phagwara, India.
- 8) *Received top 20 contributory papers award out of 320 national and international contributions at National Laser Symposium 04 held at BARC Mumbai, India.
- 9) Merit-cum-means scholarship, Department of Physics, Indian Institute of Technology – Kanpur, India.
- 10) Member of international advisory board of International Journal of Research and Scientific Innovation.
- 11) Member of International advisory board: 2nd International Conference on Multidisciplinary Research & Practice (ICMRP-2015), AMA Ahmedabad, Gujrat, India
- 12) Member of International advisory board: International Conference on Research and Innovation in Engineering (ICRIE-2016), 11th – 16th Feb 2016, United College of Engineering and Research, Greater Noida, Uttar Pradesh, India

Research Funding:-

Research funding more than INR 168.11 Million to date as PI and Co-PI from various funding agencies

Research Mentorship:-

	Student Level	Number/Names
1.	Postdoctoral candidates	1 Dr. Rajneesh Mishra 2 Dr. Prashant Kumar 3 Dr. Martha Ramesh 4 Dr. Neha Chaurasiya 5 Dr. Basanth Roondhe 6 Dr. Aatreyee Sarkar 7 Dr. Harshala Patil
2.	Graduate Students	1 Dr. Santosh Kumar Maurya 2 Dr. Sudipta Das 3 Dr. Suman Rani 4 Mr. Suyog Hawal 5 Mr. Abhishek Pandey 6 Mr. Karthik Kiran 7 Mr. Nav Deepak 8 Mr. Kaushik Pradhan 9 Ms. Charu lakshmi 10 Ms. Umisha Singh 11 Mr. Abhishek Arya
3	Masters/Dual degree thesis	More than 20