

# **INDRANIL LAHIRI**

## **Associate Professor**

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## **Work Experience**

- **December 2018 onward: Associate Professor**, Department of Metallurgical and Materials Engineering, Indian Institute of Technology (IIT) Roorkee, INDIA
- **December, 2012 – December 2018: Assistant Professor**, Department of Metallurgical and Materials Engineering, Indian Institute of Technology (IIT) Roorkee, INDIA
- **September – October 2012: Research Assistant Professor**, University of North Texas, Denton, TX, USA
- **December 2011 – August 2012: Post Doctoral Researcher**, Florida International University, Miami, FL, USA
- **Spring 2008 – Fall 2011: Graduate Research Assistant**, Florida International University, Miami, FL, USA (as PhD student)
- **May 2005 – June 2007: Senior Scientist**, NFTDC, Hyderabad, India
- **May 2000 – April 2005: Scientist**, NFTDC, Hyderabad, India

## **Education**

- **Ph. D.**, Materials Science and Engineering, Florida International University (FIU), Miami, Florida, USA, Fall 2011
- **M. Tech.** (Master of Technology), Materials & Metallurgical Engineering, Indian Institute of Technology (IIT) Kanpur, India, May 2000
- **B. E.** (Bachelor of Engineering), Metallurgical Engineering, Bengal Engineering College, Shibpur, India, June 1998

## **Teaching**

### **2013 onward (in IIT Roorkee)**

- **MT-201A:** Materials Science and Engineering (2<sup>nd</sup> Year Undergrad.) – Autumn 2013
- **MT-207:** Electrical and Electronic Materials (2<sup>nd</sup> Year Undergrad.) – Autumn 2015, 2016

- **MT-210:** Materials Characterization Lab.-I (2<sup>nd</sup> Year Undergrad.) – Autumn 2013
- **MT-220:** Materials Characterization Lab.-II (2<sup>nd</sup> Year Undergrad.) – Autumn 2013
- **MT-402:** Mechanical Working of Metals, MMED (4<sup>th</sup> Year Undergrad.) – Spring 2013, Spring 2014, Spring 2015
- **MTN-301:** Mechanical Working of Metals, MMED (3<sup>rd</sup> Year Undergrad.) – Autumn 2017
- **MT-490:** Practical Training, MMED (4<sup>th</sup> Year Undergrad.) – Spring 2013
- **NT-512:** Technology of Nanostructure Fabrication, Centre of Nanotechnology (M.Tech. and PhD) – Spring 2013, Spring 2014
- **MT-531:** Electronic Materials (M. Tech. and Ph.D. students) – Autumn 2014
- **NT-604:** Physics of Nanomaterials, Centre of Nanotechnology (M. Tech. and PhD) – Spring 2015
- **NTN-501:** Nanoscale Materials, Centre of Nanotechnology (M. Tech. and PhD) – Autumn 2015, 2016, 2017
- **MTN-530:** Nanomaterials and Applications (4<sup>th</sup> Year Undergrad. And PhD students) – Spring 2017

### Until 2012

- **EGN 3365:** Materials Engineering (undergraduate)- Spring 2012, FIU, USA

### Administrative Responsibilities (at IIT Roorkee)

- Principal Investigator, Nanomaterials and Applications Lab., Metallurgical and Materials Engineering
- Officer-in-charge, Functional Nanomaterials Lab., Centre of Nanotechnology
- Organizing Secretary, AMPCO 2017
- Member Secretary, Centre Research Committee, Centre of Nanotechnology (April 2018 onward)
- Convenor, Department Faculty Search Committee, Metallurgical and Materials Engineering (January 2019 onward)
- Member Secretary, Department Faculty Committee, Metallurgical and Materials Engineering (January 2015 – August 2017)
- Officer-in-charge, Annual Reports, Metallurgical and Materials Engineering (2014 – 2015)
- Officer-in-charge, Time Table, Metallurgical and Materials Engineering (July 2013 – August 2017)
- Officer-in-charge, Adhesive Joining Lab., Metallurgical and Materials Engineering
- Additional Officer-in-charge, Energy Materials Lab., Metallurgical and Materials Engineering
- Additional Officer-in-charge, Metal Forming Lab., Metallurgical and Materials Engineering
- Additional Officer-in-charge, Materials Engineering Lab., Metallurgical and Materials Engineering
- Additional Officer-in-charge, Materials Testing Lab., Metallurgical and Materials Engineering
- Member, Department Academic Committee, Metallurgical and Materials Engineering
- Member, Department Faculty Search Committee, Metallurgical and Materials Engineering (2015-2018)

## Research Interests

- **Carbon nanostructures** – Synthesis of carbon nanotubes on different metallic, semiconducting and insulating substrates, their electronic applications (as field electron emitter) and electrochemical application (as electrodes in batteries); synthesis of graphene and graphene derivatives (graphene oxide and reduced graphene oxide), applications for flexible, transparent field emitters and other transparent, conducting electrodes
- **1-D and 2-D nanostructures** – Development of simple synthesis routes for BN, CuO, NiO etc. and their applications in structural composites, field emission, UV shielding, bio-marker etc
- **Field emission** – Application of carbon and other nanostructures for fabrication of field emission devices, for possible application in high power microwave generators and displays
- **Energy storage devices** – Development of new materials for energy storage, e.g. in supercapacitors
- **Materials for energy harvesting** – Development of new materials for energy harvesting
- **Materials in sensing application** – Development of sensors for biological and chemical entities

## Publications

### Summary:

**US Provisional Patents – 2**

**Book Chapters – 3**

**Journal Articles – 44**

**Peer-Reviewed Conference Proceedings – 10**

**Conference/Invited Presentations – 78**

**h index – 17 (scopus.com)**

**i-10 index – 22 (google scholar)**

**Total citations – 1818 (scopus.com), 2310 (google scholar)**

### Patents

2. W. Choi, I. Lahiri, C. Kang, *High efficiency lithium ion battery anode based on 2- and 3-dimensional carbon nanotube-metal/alloy substrates*, **US Provisional Patent Appl. No. 61567979** (Filed on December 7, 2011).
1. W.B. Choi, S.J. Cho, I. Lahiri, *High efficiency lithium ion battery anode using interface-controlled binder-free carbon nanotubes grown on metal/alloy substrates*, **US Provisional Patent Appl. No. 61/222,481** (Filed on July 2, 2009).

### Book Chapters

3. Indranil Lahiri, Wonbong Choi, *Field emission and graphene: An overview of current status*, In “**Graphene: Synthesis and applications**” Ed. W. Choi, J.-W. Lee, CRC Press (Boca Raton, USA), January 2012, **ISBN**: 9781439861875, pp. 263-290.
2. Indranil Lahiri, Wonbong Choi, *Graphene and graphene based materials in solar cell application*, In “**Graphene: Synthesis and applications**” Ed. W. Choi, J.-W. Lee, CRC Press (Boca Raton, USA), January 2012, **ISBN**: 9781439861875, pp. 291-312.
1. Indranil Lahiri, *Microstructural Characterization of Mechanically Alloyed Powder by X-ray Diffraction and Atomic Force Microscopy: A case study with Cu-Cr*, In “**Advances in Materials Science Research. Vol. 3**”, Ed. M.C. Wythers, Nova Science Publishers, Inc. (NY, USA), April 2011, **ISBN**: 978-1-61728-998-9, pp. 183-203.

### Journals (Published/Accepted)

#### 2019

44. Gurjinder Kaur, Raj Kumar, **Indranil Lahiri**, Field Electron Emission from Protruded GO and rGO sheets on CuO and Cu Nanorods, **Physica E: Low-dimensional Systems and Nanostructures**, 2019, 112, 10-18. (**Impact Factor: 2.399**)

#### 2018

43. Vaibhav Jain, Amit Kumar Tripathi, Krishna Saini, Dinesh Deva, **Indranil Lahiri**, *Copper Nanowire – Carbon Nanotube Hierarchical Structure for Enhanced Field Emission*, **Journal of Materials Science: Materials in Electronics**, 2018, 29(16), 13620-13630. (**Impact Factor: 2.019**)
42. Vijayesh Kumar, Palash Chandra Maity, Debrupa Lahiri, Indranil Lahiri, *Copper Catalyzed Growth of Hexagonal Boron Nitride Nanotubes on Tungsten Substrate*, **CrystEngComm**, 2018, 20, 2713 - 2719. (**Impact Factor: 3.474**)
41. Gurjinder Kaur, K. Kavitha, **Indranil Lahiri**, *Transfer-Free Graphene Growth on Dielectric Substrates: A Review of the Growth Mechanism*, Accepted for publication in **Critical Reviews in Solid State and Materials Sciences** (DOI: 10.1080/10408436.2018.1433630). (**Impact Factor: 5.556**)

#### 2017

40. Pramod Kumar, Pawan Kumar Kanaujia, G. Vijaya Prakash, Avijit Dewasi, **Indranil Lahiri**, Anirban Mitra, *Growth of few and multi-layer graphene on different substrates using pulsed nanosecond Q-switched Nd:YAG laser*, **Journal of Materials Science**, 2017, 52 (20), 12295-12306. (**Impact Factor: 2.599**)
39. Raj Kumar, R. Manoj Kumar, Parthasarathi Bera, S. Ariharan, Debrupa Lahiri, Indranil Lahiri, *Temperature-time dependent transmittance, sheet resistance and bonding energy of reduced graphene oxide on soda lime glass*, **Applied Surface Science**, 2017, 425, 558-563. (**Impact Factor: 3.387**)

38. K. Shah, N. Balsara, S. Banerjee, M. Chintapalli, A. P. Cocco, W. K. S. Chiu, I. Lahiri, S. Martha, A. Mistry, P. P. Mukherjee, V. Ramadesigan, C. S. Sharma, V. R. Subramanian, S. Mitra, A. Jain, *State of the Art and Future Research Needs for Multiscale Analysis of Li-Ion Cells*, **J. Electrochemical Energy Conversion and Storage**, 2017, 14(2), 020801 (17 pages). **(Impact Factor: 0.817)**
37. Ankita Bisht, Mukul Srivastava, R. Manoj Kumar, Indranil Lahiri, Debrupa Lahiri, *Strengthening Mechanism in Graphene Nanoplatelets Reinforced Aluminum Composite Fabricated through Spark Plasma Sintering*, **Materials Science and Engineering A**, 2017, 695, 20-28. **(Impact Factor: 3.094)**
36. Apratim Khandelwal, Karthick Mani, Manohar Harsha Karigerasi, Indranil Lahiri, *Phosphorene - The Two-Dimensional Black Phosphorous: Properties, Synthesis and Applications*, **Materials Science and Engineering B**, 2017, 221, 17-34. **(Impact Factor: 2.552)**
35. Gurjinder Kaur, Krishna Saini, Amit Kumar Tripathi, Vaibhav Jain, Dinesh Deva, Indranil Lahiri, *Room Temperature growth and Field Emission Characteristics of CuO Nanostructures*, **Vacuum**, 2017, 139, 136-142. **(Impact Factor: 1.530)**
34. Amit Kumar Tripathi, Vaibhav Jain, Krishna Saini, Indranil Lahiri, *Field Emission Response from Multi-walled Carbon Nanotubes Grown on Electrochemically Engineered Copper Foil*, **Materials Chemistry and Physics**, 2017, 187, 39-45. **(Impact Factor: 2.101)**
33. Raj Kumar, R. Manoj Kumar, Debrupa Lahiri, Indranil Lahiri, *Thermally reduced graphene oxide film on soda lime glass as transparent conducting electrode*, **Surface and Coatings Technology**, 2017, 309, 931-937. **(Impact Factor: 2.589)**
32. Akshay V. Singhal, Hemant Charaya, Indranil Lahiri, *Noble Metal Decorated Graphene based Gas Sensors and their Fabrication: A Review*, **Critical Reviews in Solid State and Materials Sciences**, 2017, 42 (6), 499-526. **(Impact Factor: 5.556)**

## 2016

31. Vijayesh Kumar, Nikhil Kumar, Partha Roy, Debrupa Lahiri, Indranil Lahiri, *Emergence of fluorescence in boron nitride nanoflakes and its application in bioimaging*, **RSC Advances**, 2016, 6, 48025 - 48032. **(Impact Factor: 3.108)**

## 2015

30. Sameer Chouksey, AnjanSil, DebrupaLahiri, Indranil Lahiri, *Atmospheric oxidation effect of silicon-carbon nanotube anode on Li-ion battery performance*, **Nanomaterials and Energy**, 4 (2), 2015, 153-158.
29. Krishna Saini, Manoj Kumar R., Debrupa Lahiri, Indranil Lahiri, *Quantifying Bonding Strength of CuO Nanotubes with Substrate Using Nano-Scratch Technique*. **Nanotechnology**, 26, 2015, 305701. **(Impact Factor: 3.440)**
28. Gaurav Mittal, Mamta Khaneja, Krishna Saini, Indranil Lahiri, *Carbon nanotube based 3-dimensional hierarchical field emitter structure*. **RSC Advances**, 5, 2015, 21487-21494. **(Impact Factor: 3.108)**

## 2014

27. Gaurav Mittal, Indranil Lahiri, *Recent progress in nanostructured next-generation field emission devices*. **Journal of Physics D: Applied Physics**, 47, 2014, 323001. **(Impact Factor: 2.588)**

## 2013

26. Zheng Yan<sup>†</sup>, Lulu Ma<sup>†</sup>, Yu Zhu<sup>†</sup>, Indranil Lahiri, Myung GwanHahm, Zheng Liu, Shubin Yang, Changsheng Xiang, Wei Lu, Zhiwei Peng, Zhengzong Sun, Carter Kittrell, Jun Lou, Wonbong Choi, Pulickel M. Ajayan, James M. Tour, *Three-dimensional metal-graphene-nanotube multifunctional hybrid materials*. **ACS Nano**, 7(1), 2013, 58-64. **(Impact Factor: 13.942)**
25. Indranil Lahiri, Wonbong Choi, *Carbon Nanostructures in Lithium Ion Batteries: Past, Present and Future*. **Critical Reviews in Solid State and Materials Sciences**, 38, 2013, 128-166. **(Impact Factor: 5.556)**  
<http://www.tandfonline.com/eprint/8aBTAbfxZyYxHrn9vmEM/full>

## 2012

24. Indranil Lahiri, Joyce Wong, Zilu Zhou, Wonbong Choi, *Ultra-high current density multiwall carbon nanotube field emitter structure on three-dimensional micro-channeled copper*, **Applied Physics Letters**, 101, 2012, 063110 (5 pages). **(Impact Factor: 3.411)**
23. Chiwon Kang<sup>#</sup>, Indranil Lahiri<sup>#</sup> (#equal contributors), Rangasamy Baskaran, Jun Y. Hwang, Won-Gi Kim, Yang-Kook Sun, Rajarshi Banerjee, Wonbong Choi, *Multiwall Carbon Nanotube Based Anodes on 3D Current Collector for Li-Ion Batteries*, **Journal of Power Sources**, 219, 2012, 364-370. **(Impact Factor: 6.395)**

## 2011

22. Indranil Lahiri, Seung-Min Oh, Jun Y. Hwang, Chiwon Kang, Hyeongtag Jeon, Rajarshi Banerjee, Yang-Kook Sun, Wonbong Choi, *Ultrathin alumina coated carbon nanotubes as negative electrodes for high capacity and safe Li-ion battery*, **Journal of Materials Chemistry**, 21, 2011, 13621-13626. **(Impact Factor: 5.968)**
21. Indranil Lahiri, Wonbong Choi, *Interface control: A modified rooting technique for enhancing field emission from multiwall carbon nanotube based bulk emitters*, **Acta Materialia**, 59, 2011, 5411-5421. **(Impact Factor: 5.301)**
20. Indranil Lahiri<sup>#</sup>, Debrupa Lahiri<sup>#</sup> (#equal contributors), Sungho Jin, Arvind Agarwal, Wonbong Choi, *Carbon Nanotubes: How strong is their bond with the substrate?*, **ACS Nano**, 5(2), 2011, 780-787. **(Impact Factor: 13.942)**  
Highlighted as spotlight in "Nanowerk" (<http://www.nanowerk.com/spotlight/spotid=19707.php>)

19. **Indranil Lahiri**, Ved Prakash Verma, Wonbong Choi, *An all-graphene based transparent and flexible field emission device*, **Carbon**, 49 (5), 2011, 1614-1619. **(Impact Factor: 6.337)**
18. **Indranil Lahiri**, Santanu Das, Chiwon Kang, Wonbong Choi, *Application of carbon nanostructures – Energy to electronics*, **JOM**, 63(6), 2011, 70-76. **(Impact Factor: 2.435)**
17. Santanu Das, Raghunandan Seelaboyina, Ved Verma, **Indranil Lahiri**, Jun Yeon Hwang, Rajarshi Banerjee, Wonbong Choi, *Synthesis and Characterization of Self-Organized Multilayered Graphene-Carbon Nanotube Hybrid Films*, **Journal of Materials Chemistry**, 21, 2011, 7289-7295. **(Impact Factor: 5.968)**
16. Jun Huang, Unjeong Kim, Bei Wang, **Indranil Lahiri**, Eunhong Lee, Peter C. Eklund, Wonbong Choi, *Controlled Growth of Single-walled Carbon Nanotubes for Unique Nanodevices*, **Journal of Nanoscience and Nanotechnology**, 11(1), 2011, 262-269. **(Impact Factor: 1.483)**

## 2010

15. **Indranil Lahiri**, Sung-Woo Oh, Jun Y. Hwang, Sungjin Cho, Yang K. Sun, Rajarshi Banerjee, Wonbong Choi, *High capacity and excellent stability of lithium ion battery anode using interface-controlled binder-free multiwall carbon nanotubes grown on copper*, **ACS Nano**, 4(6), 2010, 3440-3446. **(Impact Factor: 13.942)**
14. **Indranil Lahiri**, Raghunandan Seelaboyina, Jun Y Hwang, Raj Banerjee, Wonbong Choi, *Enhanced field emission from multi-walled carbon nanotubes grown on pure copper substrate*, **Carbon**, 48 (5), 2010, 1531-1538. **(Impact Factor: 6.337)**
13. **Indranil Lahiri**, *Prospects of oxide materials in Li-ion batteries*, **American Ceramic Society Bulletin**, 89 (6), 2010, 17-18. **(Impact Factor: 0.607)**
12. Jun Huang, Bei Wang, **Indranil Lahiri**, Awnish K. Gupta, Peter C. Eklund, Wonbong Choi, *Effect of bending on the resistivity and Raman spectrum of single-walled carbon nanotubes*, **Advanced Functional Materials**, 20, 2010, 4388-4393. **(Impact Factor: 11.382)**
11. Ved Prakash Verma, Santanu Das, **Indranil Lahiri**, Wonbong Choi, *Large-area graphene on polymer film for flexible and transparent anode in field emission device*, **Applied Physics Letters**, 96 (20), 2010, 203108(1-3). Also published in *Virtual Journal of Nanoscale Science and Technology*, Vol. 21, Issue 22, May 31, 2010. **(Impact Factor: 3.411)**
10. Raghunandan Seelaboyina, **Indranil Lahiri**, Wonbong Choi, *Carbon Nanotube Embedded Novel 3-Dimensional Alumina Microchannel Cold Cathodes for High Electron Emission*, **Nanotechnology**, 21 (14), 2010, 145206. **(Impact Factor: 3.440)**
9. Wonbong Choi, **Indranil Lahiri**, Raghunandan Seelaboyina, Yong Soo Kang, *Synthesis of graphene and its applications: a review*, **Critical Reviews in Solid State and Materials Sciences**, 35, 2010, 52-71. **(Impact Factor: 5.556) Most-cited article of the journal**  
<http://www.tandfonline.com/eprint/kBHWaJ6rC4XT855NsaVn/full>

## 2009

8. **Indranil Lahiri**, Sanjeev Bhargava, *Crystallite size of mechanically alloyed Cu-Cr powder – a comparison between X-ray diffraction and atomic force microscopy techniques*, **Materials Characterization**, 60 (11), 2009, 1406-1410. **(Impact Factor: 2.714)**
7. **Indranil Lahiri**, Sanjeev Bhargava, *Enhanced properties of functionally gradient Cu-Cr powder compacts*, **International Journal of Materials Research (formerly: Zeitschrift fuer Metallkunde)**, 100 (5), 2009, 723-729. **(Impact Factor: 0.681)**
6. **Indranil Lahiri**, S. Bhargava, *Compaction and sintering response of mechanically alloyed Cu-Cr powder*, **Powder Technology**, 189 (3), 2009, 433-438. **(Impact Factor: 2.942)**
5. **I. Lahiri**, S. Bhargava, *X-ray powder diffraction line profile analysis of mechanically alloyed Cu-Cr powder*, **Materials Science and Technology**, 25 (4), 2009, 520-526. **(Impact Factor: 1.180)**

## 2000 – 2008

4. **Indranil Lahiri**, K. Balasubramanian, *Application of mechano-chemical synthesis for protective coating on steel grinding media prior to ball milling of copper*, **Bulletin of Materials Science**, 30 (2), 2007, 157-161. **(Impact Factor: 0.899)**
3. Satyam Suwas, **I. Lahiri**, R.K. Ray, S. Bhargava, *The 8her hardness yield locus of Ti-24Al-11Nb alloy*, **Materials Letters**, 57 (21), 2003, 3251-3256. **(Impact Factor: 2.572)**
2. **Indranil Lahiri**, Debrupa Lahiri (Mondal), S. Bhargava, *Effect of prior  $\beta$ -processing on superplasticity of  $(\alpha+\beta)$  thermo-mechanically treated Ti-6Al-4V alloy*, **Materials and Manufacturing Processes**, 18 (4), 2003, 621-635. **(Impact Factor: 2.322)**
1. **Indranil Lahiri**, S. Bhargava, *Superplasticity in titanium alloys*, **Titanium**, 5 (2), 2000, 11-21.

## Peer-reviewed Symposium Proceedings (Published)

10. K.N. Sasidhar, Ananya Srivastava, Parthasarathi Bera, **Indranil Lahiri**, *Catalytic activity of pure Ni and Ni-33%Cu for dehydrogenation during graphene growth by chemical vapour deposition*, **Materials Today: Proceedings**, 5, 2018, 17284-17292.
9. Vijayesh Kumar, Debrupa Lahiri, **Indranil Lahiri**, *Synthesis of boron nitride nanotubes and boron nitride nanoflakes with potential application in biomaging*, **Materials Today: Proceedings**, 5, 2018, 16756-16762.
8. Raj Kumar, R. Manoj Kumar, Debrupa Lahiri, **Indranil Lahiri**, *Measurement of bonding strength of thermally reduced graphene oxide with soda lime glass using nanoscratch technique*, **Materials Today: Proceedings**, 5, 2018, 16338-16345.
7. Pramod Kumar, **Indranil Lahiri**, Anirban Mitra, *Direct graphene growth from highly ordered pyrolytic graphite using pulsed Nd: YAG laser on p-Si (100) substrate at 700°C*, **AIP Conference Proceedings**, 1728, 2016, 020452 (1-4).

6. Wonbong Choi, Indranil Lahiri, *Novel design considerations for high efficiency carbon nanotube field emitters*, **Technical Digest – 25<sup>th</sup> International Vacuum Nanoelectronics Conference, IVNC 2012**, art. No. 6316855, pp. 30-31.
5. Chiwon Kang, Indranil Lahiri, Rangasamy Baskaran, Mansoo Choi, Yang-Kook Sun, Wonbong Choi, *3D Multiwall Carbon Nanotubes (MWCNTs) for Li-Ion Battery Anode*, **TMS 2012 Proc.**, Vol. 2, 2012, 35-41.
4. Santanu Das, Indranil Lahiri, Chiwon Kang, Wonbong Choi, *Engineering Carbon Nanomaterials for Future Applications: Energy and Bio-sensor*, **Proc. SPIE 8031**, 80311K (2011), DOI: 10.1117/12.883743.
3. Indranil Lahiri, Sung-Woo Oh, Yang-Kook Sun, Wonbong Choi, *High specific capacity and excellent stability of interface-controlled MWCNT based anodes in lithium ion battery*, **MRS Symp. Proc. 2010**, Vol. 1313, mrsf10-1313-kk07-11, 60-67.
2. Ved P. Verma, Santanu Das, Indranil Lahiri, Wonbong Choi, *Large area graphene on polymer films for transparent and flexible field emission device*, **MRS Symp. Proc. 2010**, Vol. 1283, 2011, 82-88.
1. Indranil Lahiri, Raghunandan Seelaboyina, Won Bong Choi, *Field Emission Response from Multiwall Carbon Nanotubes Grown on Different Metallic Substrates*, In *Nanotubes and Related Nanostructures — 2009*, Ed. Yoke Khin Yap (**MRS Symp. Proc.** Vol. 1204, Warrendale, PA, 2010), 1204-K18-21, 257-263.

### **Invited/Contributed/Poster Presentation**

78. Indranil Lahiri, Transparent Conducting Electrodes from reduced graphene oxide, **TEQIP Workshop on “Nanobiotechnology”**, Indian Institute of Technology Roorkee, India, May 6-10, 2019. (Invited)
77. Indranil Lahiri, Graphene Based Material for Transparent Conducting Electrode Application, **National Workshop on “Graphene based device fabrication and characterization”**, University Institute of Engineering and Technology, Kurukshetra University, India, Feb. 26-17, 2019. (Invited)
76. Indranil Lahiri, Graphene and Graphene Derivatives: An Overview of Synthesis Processes, **National Workshop on “Graphene based device fabrication and characterization”**, University Institute of Engineering and Technology, Kurukshetra University, India, Feb. 26-17, 2019. (Invited)
75. Indranil Lahiri, Gurjinder Kaur, Vaibhav Jain, Vishal Panwar, Narasimha Vinod Pulagara, Raj Kumar, Tishant Chandrakar, , Shubham Kumar, Hybrid Hierarchical Structures of Graphene Derivatives and Morphologically Different CuO Nanostructures for Field Emitter Application, **International Conference on Advanced Ceramics and Nanomaterials for Sustainable Development (ACeND) 2018**, Bengaluru, India, Sept. 19-21, 2018. (Invited)
74. Palash Chandra Maity, Jagdish Arya, Manwar Alisha Anil, Hemlata Borana, Narashima Vinod Pulagara, Indranil Lahiri, Nanostructured NiO-GO/CNT Hybrid for Field Emitter Application, **International Conference on Advanced Ceramics and Nanomaterials for Sustainable Development (AcEND) 2018**, Bengaluru, India, Sept. 19-21, 2018. **(PCM received “Best Poster Award” of the conference)**

73. Gurjinder Kaur, Narasimha Vinod Pulagara, Raj Kumar, Indranil Lahiri, rGO coated CuO nanowires on 3D copper foam and its improved field emission properties, **Graphene 2018**, Dresden, Germany, June 26-29, 2018. **[GK was awarded with International Travel Support (ITS) from Science and Engineering Research Board (SERB), India for attending this conference]**
72. Pramod Kumar, Indranil Lahiri, Anirban Mitra, *Formation of few- and multilayer graphene on different substrates using pulsed laser deposition*, **International Conference on Advances in Materials & Processing: Challenges & Opportunities (AMPCO 2017)**, IIT Roorkee, India, Nov. 30- Dec. 2, 2017.
71. K. N. Sasidhar, Lakshman N. Chakrav, R. Manoj Kumar, Debrupa Lahiri, Indranil Lahiri, *Substrate-Suspension Interface Engineering during Electrophoretic Deposition of Reduced Graphene Oxide: A Road to Optimize Field Emission Properties*, **International Conference on Advances in Materials & Processing: Challenges & Opportunities (AMPCO 2017)**, MMED, IIT Roorkee, India, Nov. 30- Dec. 02, 2017.
70. K. N. Sasidhar, Ananya Srivastava, Parthasarathi Bera, Indranil Lahiri, *Graphene Growth by Chemical Vapour Deposition on Pure Ni and Ni-33Cu Alloy – An Insight into the Growth Mechanism*, **International Conference on Advances in Materials & Processing: Challenges & Opportunities (AMPCO 2017)**, MMED, IIT Roorkee, India, Nov. 30- Dec. 02, 2017.
69. Vishal Panwar, Gurjinder Kaur, Narasimha Vinod Pulagara, Indranil Lahiri, *Field Emission Characteristics of Copper Oxide Nanostructures Synthesized at Different Temperatures by Wet Chemical Method*, **International Conference on Advances in Materials & Processing: Challenges & Opportunities (AMPCO 2017)**, MMED, IIT Roorkee, India, Nov. 30- Dec. 02, 2017.
68. Gurjinder Kaur, Narasimha Vinod Pulagara, Indranil Lahiri, *Field emission response of carbon nanotubes bases 2-dimensional and 3-dimensional structures*, **International Conference on Advances in Materials & Processing: Challenges & Opportunities (AMPCO 2017)**, MMED, IIT Roorkee, India, Nov. 30- Dec. 02, 2017.
67. Raj Kumar, Indranil Lahiri, *rGO-on-soda lime glass: a low cost counter electrode for dye sensitized solar cell*, **International Conference on Advances in Materials & Processing: Challenges and Opportunities (AMPCO 2017)**, Roorkee, India, Nov. 30- Dec. 2, 2017.
66. Vishal Panwar, Gurjinder Kaur, Narasimha Vinod Pulagara, Indranil Lahiri, *Growth of copper oxide Nanostructure at various temperatures by wet chemical method*, **71<sup>st</sup> Annual Technical Meeting of Indian Institute of Metals**, Goa, India, Nov. 11-14, 2017.
65. Raj Kumar, Indranil Lahiri, *rGO-on-soda lime glass: a transparent-conducting electrode for solar cell application and its temperature-time dependent delamination energy*, **71<sup>st</sup> Annual Technical Meeting of Indian Institute of Metals**, Goa, India, Nov. 11-14, 2017.
64. Raj Kumar, Indranil Lahiri, *Temperature-time dependent delamination energy of thermally reduced graphene oxide on soda lime glass as transparent conducting electrode*, **9<sup>th</sup> Annual Recent Progress in Graphene and Two-dimensional Materials Research Conference (RPGR2017)**, Singapore,

Sep. 19-22, 2017. **[RK was awarded with International Travel Support (ITS) from Science and Engineering Research Board (SERB), India for attending this conference]**

63. Gurjinder Kaur, Krishna Saini, Narasimha Vinod Pulagara, Indranil Lahiri, *Correlation between Morphology and Field Emission Behaviour of Various CuO Nanostructures*, **TMS 2017 – 146<sup>th</sup> Annual Meeting and Exhibition**, San Diego, California, USA, Feb. 26- Mar. 02, 2017. (Invited)
62. Vijayesh Kumar, Debrupa Lahiri, Indranil Lahiri, *Catalyzed BNNT Growth on Metallic Substrates*, **TMS 2017 – 146<sup>th</sup> Annual Meeting and Exhibition**, San Diego, USA, Feb. 26 – Mar. 02, 2017. (Invited)
61. Raj Kumar, Manoj Kumar R., Debrupa Lahiri, Indranil Lahiri, *Thermally reduced graphene oxide film on soda lime glass and its temperature-time dependence of de-bonding energy*, **TMS 2017 - 146<sup>th</sup> Annual Meeting and Exhibition**, San Diego, California, USA, Feb. 26 – Mar. 02, 2017.
60. Vijayesh Kumar, Debrupa Lahiri, Indranil Lahiri, *1D and 2D boron nitride nanostructures and their applications*, **International Conference on Materials Sciences (SCICON'16)**, Coimbatore, India, Dec. 19-21, 2016. **(VK won 'Best Paper Award' for this presentation)**
59. Raj Kumar, Manoj Kumar R., Debrupa Lahiri, Indranil Lahiri, *Quantification of temperature-time dependent bonding strength of thermally reduced graphene oxide with soda lime glass as transparent conducting electrode*, **2<sup>nd</sup> International Conference on Soft Materials (ICSM-2016)**, Jaipur, India, Dec. 12-16, 2016.
58. Raj Kumar, R. Manoj Kumar, Debrupa Lahiri, Indranil Lahiri, *Measuring bonding strength of thermally reduced graphene oxide with soda lime glass using nanoscratch technique*, **International Conference on Materials Sciences (SCICON '16)**, Coimbatore, India, Dec. 19-21, 2016.
57. Indranil Lahiri, *Carbon nanostructures in Li-ion Battery*, **QIP short term course on Relevance of Nanotechnology to Rechargeable battery technology** 18-22 July, 2016, IIT Roorkee. (Invited)
56. Indranil Lahiri, *Carbon nanotube based anodes in Li-ion battery*, **Indo-US bilateral workshop on ``Recent Advances in Multiscale, Multiphysics Analysis of Energy Conversion in Li-ion Batteries``**, IIT Bombay, India, June 17-19, 2016. (Invited)
55. Nikhil Mohandas, Raj Kumar, Indranil Lahiri, *Synthesis and field emission response of anodically reduced graphene oxide*, **4<sup>th</sup> International Conference on Frontiers of Nanoscience and Technology- Cochin Nano**, Kochi, India, February 20-24, 2016.
54. Kavitha, Indranil Lahiri, *Graphene synthesis by thermal chemical vapour deposition using solid carbon sources*, **4<sup>th</sup> International Conference on Frontiers of Nanoscience and Technology- Cochin Nano**, Kochi, India, February 20-24, 2016.
53. Pramod Kumar, Indranil Lahiri, Anirban Mitra, *Direct Graphene Growth From Highly Ordered Pyrolytic Graphite Using Pulsed Nd: YAG Laser On p-Si (100) Substrate at 700 °C*, **International Conference on Condensed Matter & Applied Physics (ICC-2015)**, Bikaner, India, Oct. 30-31, 2015.
52. Indranil Lahiri, *Nanostructure synthesis and applications*, Short term course on **“Nanotechnology: Basics and Applications in Chemical Engineering”**, 22-26 June, 2015, IIT Roorkee. (Invited)

51. Indranil Lahiri, *Nanotechnology and its applications*, Tripura Institute of Technology, Agartala, Feb. 22, 2015. (Invited)
50. Indranil Lahiri, *Nanostructured Carbon in Field Emission and Energy Storage*, BARC, Mumbai, Dec. 23, 2014. (Invited)
49. Vaibhav Jain, Amit Tripathi, Indranil Lahiri, *Field Emission response of CNT Emitters synthesized on different substrate*, 7<sup>th</sup>**Bangalore India Nano**, Bangalore, India, Dec. 4-6, 2014.
48. Krishna Saini, Khelendra Agrawal, Debrupa Lahiri, Indranil Lahiri, *Bonding Strength of CuO NT with substrate*, 7<sup>th</sup>**Bangalore India Nano**, Bangalore, India, Dec. 4-6, 2014.
47. Amit Tripathi, Vaibhav Jain, Indranil Lahiri, *Growth of vertically aligned CNTs on Cu substrate*, 7<sup>th</sup>**Bangalore India Nano**, Bangalore, India, Dec. 4-6, 2014.
46. Gaurav Mital, Indranil Lahiri, *CNT based 3-dimensional structure as high current density field emitter*, **Indian Institute of Metals (IIM) Annual Technical Meeting**, Pune, India, Nov. 12-15, 2014.
45. Sameer Chouksey, Indranil Lahiri, *Si-CNT hybrid structure as Li-ion battery anode material*, **Indian Institute of Metals (IIM) Annual Technical Meeting**, Pune, India, Nov. 12-15, 2014.
44. Indranil Lahiri, *Prospect of Carbon Nanotubes in Li-ion Battery*, **TMS 2014**, San Diego, USA, Feb. 16-20, 2014.
43. Gaurav Mittal, Indranil Lahiri, *High-current-density field emitter with carbon nanotubes – an overview*, 6<sup>th</sup>**Bangalore India Nano**, Bangalore, India, Dec. 4-6, 2013.
42. Sameer Chouksey, Indranil Lahiri, *High performance Li-ion battery based on CNT-Si Core-Shell structured anode – an overview*, 6<sup>th</sup>**Bangalore India Nano**, Bangalore, India, Dec. 4-6, 2013.
41. Indranil Lahiri, *Carbon nanotube as an anode material in Li-ion battery*, **Indian Institute of Metals (IIM) Annual Technical Meeting**, Varanasi, India, Nov. 12-16, 2013. (Invited)
40. Indranil Lahiri, *Carbon nanotube based high energy-efficient applications*, Short term course on “**Essentials of Nanoscience and Nanotechnology**”, 18-22 February, 2013, IIT Roorkee. (Invited)
39. Chiwon Kang, Indranil Lahiri, Rangasamy Baskaran, Won-Gi Kim, Yang-Kook Sun, Wonbong Choi, *3 Dimensional Carbon Nanofibers for Li-Ion Battery Anode*, **MRS Fall 2012**, Boston, USA, Nov. 25-30, 2012.
38. Indranil Lahiri, Wonbong Choi, *Novel design considerations for high efficiency carbon nanotube field emitters: Interface engineering and 3-D architecture*, **MS&T 2012**, Pittsburgh, USA, 7 – 11 October, 2012.
37. Indranil Lahiri, Wonbong Choi, *High efficiency field emission and energy storage: Application of interface engineered carbon nanotube structures*, **Nano Korea 2012**, Seoul, Korea, August 16-18, 2012.
36. Indranil Lahiri, Ved Prakash Verma, Wonbong Choi, *Transparent, Flexible Field Emitter using hybrid Graphene-MWCNT structure*, **Nano Korea 2012**, Seoul, Korea, August 16-18, 2012.
35. Rangasamy Baskaran, Chiwon Kang, Indranil Lahiri, Wonbong Choi, *Ex-situ investigations on 3D MWCNT anode for Li ion battery*, **Nano Korea 2012**, Seoul, Korea, August 16-18, 2012.

34. Wonbong Choi, Indranil Lahiri, *Novel design considerations for high efficiency carbon nanotube field emitters*, **25<sup>th</sup> International Vacuum Nanoelectronics Conference 2012** (IVNC 2012), Jeju, Korea, July 9-13.
33. Indranil Lahiri, Wonbong Choi, *Interface engineered carbon nanotube based high efficiency electrodes for field electron emission and energy storage devices*, **11<sup>th</sup> US-Korea Workshop on Nanostructured Materials**, Dallas, USA, May 1 – 4, 2012.
32. Indranil Lahiri, Ved Prakash Verma, Wonbong Choi, *Graphene-CNT hybrid structure based Transparent and Flexible Field Emission Device*, **9<sup>th</sup> US-Korea Workshop on Nanoelectronics**, Dallas, USA, May 1 – 4, 2012.
31. Indranil Lahiri, Wonbong Choi, *Interface engineering as a tool to enhance efficiencies of carbon nanotube based devices*, **TMS 2012**, Orlando, USA, Mar. 11-15, 2012.
30. Wonbong Choi, Indranil Lahiri, Santanu Das, Chiwon Kang, *Application of Carbon Nanotubes – Energy to Bioelectronic Sensor*, **TMS 2012**, Orlando, USA, Mar. 11-15, 2012.
29. Chiwon Kang, Indranil Lahiri, Rangasamy Baskaran, Mansoo Choi, Yang-Kook Sun, Wonbong Choi, *3D Multiwall Carbon Nanotubes (MWCNTs) for Li-Ion Battery Anode*, **TMS 2012**, Orlando, USA, Mar. 11-15, 2012.
28. Indranil Lahiri, Wonbong Choi, *Interface engineered carbon nanotube based high efficiency electrodes for field electron emission and energy storage devices*, **MRS Fall 2011**, Boston, USA, Nov. 28 – Dec. 2, 2011.
27. Indranil Lahiri, Santanu Das, Chiwon Kang, Wonbong Choi, *Field electron energized phase change in thin  $\text{Ge}_2\text{Sb}_2\text{Te}_5$  film for memory application*, **2011 ASME-IMECE**, Denver, USA, Nov. 11 – 17, 2011.
26. Indranil Lahiri, Wonbong Choi, *Ultrathin alumina coated carbon nanotubes as anodes for high capacity Li-ion battery*, **MS&T 2011**, Columbus, USA, 16 – 20 October, 2011.
25. Indranil Lahiri, Wonbong Choi, *Interface engineered carbon nanotube-based field emission devices*, **MS&T 2011**, Columbus, USA, 16 – 20 October, 2011.
24. Chiwon Kang, Indranil Lahiri, Rangasamy Baskaran, Mansoo Choi, Yang-Kook Sun, Wonbong Choi, *An efficient Li-Ion Battery Anode Based on 3D Carbon Nanotubes Structure*, **Nano Florida 2011**, Miami, USA, Sep. 30 – Oct. 1, 2011.
23. Indranil Lahiri, Wonbong Choi, *Performance optimization of carbon nanotube-based field emission devices through interface engineering*, **Nano-Electronic Devices for Defense and Security Conference (Nano-DDS)**, Brooklyn, USA, Aug. 29 – Sept. 1, 2011.
22. Indranil Lahiri, Ved Prakash Verma, Santanu Das, Wonbong Choi, *CNT-on-graphene composite structure as transparent-flexible field emission device*, **Nano-Electronic Devices for Defense and Security Conference (Nano-DDS)**, Brooklyn, USA, Aug. 29 – Sept. 1, 2011.
21. W. Choi, I. Lahiri, S. Das, M. Choi, P. Sudhagar, Y. Sun, Y. Kang, *Carbon Nanomaterials for High Efficiency Energy Devices*, **The 18<sup>th</sup> International Conference on Composite Materials**, Jeju Island, Korea, 21-26 August, 2011.

20. Indranil Lahiri, Ved Prakash Verma, Mansoo Choi, Wonbong Choi, *A Graphene-based Hybrid Structure as Flexible, Transparent Field Emitter*, **Graphene 2011**, Bilbao, Spain, 11 – 14 April, 2011.
19. Indranil Lahiri, Ved Prakash Verma, Wonbong Choi, *Graphene-CNT hybrid structure based Transparent and Flexible Field Emission Device*, **TMS Annual Meeting 2011**, San Diego, USA, Feb. 27 – Mar 3, 2011.
18. Indranil Lahiri, Debrupa Lahiri, Sungho Jin, Arvind Agarwal, Wonbong Choi, *Carbon Nanotubes: How strong is their bond with the substrate?*, **TMS Annual Meeting 2011**, San Diego, USA, Feb. 27 – Mar 3, 2011.
17. Indranil Lahiri, Sung-Woo Oh, Yang-Kook Sun, Wonbong Choi, *MWCNT based structures as negative electrodes for high capacity lithium ion batteries*, **TMS Annual Meeting 2011**, San Diego, USA, Feb. 27 – Mar 3, 2011.
16. Santanu Das, Indranil Lahiri, Ved P. Verma, Wonbong Choi, *Graphene for Large Scale Flexible Transparent Conducting Nanoelectronics and Bio-Devices*, **BIONIUM 2010**, Miami, USA, 9 – 10 December, 2010.
15. Indranil Lahiri, Sung-Woo Oh, Yang-Kook Sun, Wonbong Choi, *High specific capacity and excellent stability of interface-controlled MWCNT based anodes in lithium ion battery*, **MRS Fall 2010**, Boston, USA, Nov. 29 – Dec. 3, 2010.
14. Ajay Kumar, Indranil Lahiri, Wonbong Choi, *The field emission from multiwall carbon nanotubes grown on copper foam*, **MRS Fall 2010**, Boston, USA, Nov. 29 – Dec. 3, 2010.
13. Ved P. Verma, Santanu Das, Indranil Lahiri, Wonbong Choi, *Large area graphene on polymer films for transparent and flexible field emission device*, **MRS Fall 2010**, Boston, USA, Nov. 29 – Dec. 3, 2010.
12. Ved P. Verma, Indranil Lahiri, Santanu Das, Mansoo Choi, Wonbong Choi, *Graphene for flexible field emission display*, **Dasan Conference: Graphene Science and Technology**, Boston, USA, Nov. 29 – Dec. 3, 2010.
11. Indranil Lahiri, Sung-Woo Oh, Yang-Kook Sun, Wonbong Choi, *High specific capacity and excellent stability of interface-controlled MWCNT based anode structures for application in lithium ion batteries*, **218<sup>th</sup> ECS Meeting**, Las Vegas, USA, 10-15 October, 2010.
10. Indranil Lahiri, Sung-Woo Oh, Yang-Kook Sun, Wonbong Choi, *Multi wall carbon nanotubes directly grown on copper current collector as anode for lithium ion batteries*, **2010 Florida Energy Systems Consortium Summit**, Orlando, USA, 28-29 September 2010.
9. Ved P. Verma, Santanu Das, Indranil Lahiri, Wonbong Choi, *Large-area Graphene on Polymer Film for Transparent and Flexible Electrode*, **2010 Florida Energy Systems Consortium Summit**, Orlando, USA, 28-29 September 2010.
8. Indranil Lahiri, Raghunandan Seelaboyina, Wonbong Choi, *Enhanced field emission from multiwall carbon nanotubes through substrate optimization and novel 3D design*, **IEEE NANO 2010-NANO KOREA 2010**, Seoul, Korea, 17-20 August, 2010.

7. Santanu Das, Raghunandan Seelaboyina, Ved P. Verma, Indranil Lahiri, Dong Hoon Song, Young Soo Kang, Wonbong Choi, *Graphene and carbon nanotube hybrid structure and its applications in flexible electronics devices*, **IEEE NANO 2010-NANO KOREA 2010**, Seoul, Korea, 17-20 August, 2010.
6. Chiwon Kang, Indranil Lahiri, Yang-Kook Sun, Wonbong Choi, *Synthesis and electrochemical characterization of carbon nanostructures for Li-ion battery anode*, **US-Korea Conference 2010**, Seattle, USA, 11-15 August, 2010.
5. Indranil Lahiri, Chiwon Kang, Wonbong Choi, *Carbon nanostructures in Li-ion batteries*, **FIU First Energy Day Workshop**, Miami, USA, 12 March, 2010.
4. Jun Huang, Bei Wang, Indranil Lahiri, Awnish K. Gupta, Peter C. Eklund, Wonbong Choi, *Controlled Growth of Single-walled Carbon Nanotubes for Unique Nanodevices*, **Nano-Korea 2009**, Seoul, Korea, 26-28 August, 2009.
3. Indranil Lahiri, Raghunandan Seelaboyina, Wonbong Choi, *Field Emission Response from Multiwall Carbon Nanotubes Grown on Different Metallic Substrates*, **MRS Fall 2009**, Boston, USA, 30 November – 4 December, 2009.
2. Indranil Lahiri, Raghunandan Seelaboyina, Wonbong Choi, *High efficiency multi-walled carbon nanotube field emitters grown on pure Cu substrate*, **TMS Annual Meeting**, San Francisco, USA, 15-19 February, 2009.
1. R. Seelaboyina, I. Lahiri, K.W. Jones, W.B. Choi, *A novel ceramic high secondary yield micro-channel plate*, **TMS Annual Meeting**, San Francisco, USA, 15-19 February, 2009.

## Research Fund

Sl. No.	Funding Agency	Fund (Rs.)	Status	Research Area	Investigators
1	SRIC, IITR (Faculty Initiation Grant)	10,00,000	2013 – 2016	Ultra-High Current-Density Field Emission System	Indranil Lahiri as PI
2	Naval Research Board, India	24,96,000	2016 – 2019	2D and 3D Field Emitters	Indranil Lahiri as PI
3	Department of Science and Technology (DST), SERB, India	59,09,560	2017 –2020	Graphene synthesis on Cu-Ni substrates	Indranil Lahiri as PI, K.S. Suresh as Co-PI

4	Indian Space Research Organization (ISRO), India	27,61,000	2019 – 2022	Development of graphene based transparent and conductive coating for spacecraft applications	Indranil Lahiri as PI
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## Students Supervised

### Ph. D (Completed – 2; On-going – 9)

Sl. No.	Name	Dept./Center	Admitted in	Supervisor/Co-Supervisor	Area of Research
1	Vijayesh Kumar	Center of Nanotechnology	Autumn 2013-14 (Graduated in 2017)	Co-Supervisor (Dr. D. Lahiri as Supervisor)	Synthesis and application of boron nitride nanostructures
2	Raj Kumar	Metallurgical & Materials Engineering	Autumn 2013-14 (Graduated in 2018)	Supervisor	Graphene based materials for transparent conducting electrode application
3	Pramod Kumar	Metallurgical & Materials Engineering	Autumn 2012-13 (joined group in Autumn 2013-14)	Supervisor (Dr. A. Mitra, Physics as Co-Supervisor)	Optical properties of carbon nanomaterials
4	Gurjinder Kaur	Metallurgical & Materials Engineering	Autumn 2014-15	Supervisor	Graphene synthesis
5	Akshay V. Singhal	Center of Nanotechnology	Autumn 2015-16 (Part Time)	Supervisor	Graphene synthesis and application
6	Narasimha Vinod Pulagara	Metallurgical & Materials Engineering	Spring 2015-16	Supervisor	Field emission from nanostructured materials
7	Palash Chandra Maity	Metallurgical & Materials Engineering	Spring 2016-17	Supervisor	Graphene synthesis
8	Akanksha R. Urade	Center of Nanotechnology	Spring 2017-18 (JRF)	Supervisor (Dr. K.S. Suresh, MMED as Co-supervisor)	Graphene synthesis
9	Atif Suhail	Metallurgical & Materials Engineering	Spring 2017-18	Supervisor	BN nanostructures
10	Vishal Panwar	Metallurgical & Materials Engineering	Spring 2018-19	Supervisor	Oxide nanostructures
11	Tayade Nitamkumar Gautam	Metallurgical & Materials Engineering	Spring 2018-19	Co-supervisor (Dr. D. Lahiri, MMED as supervisor)	Nanomaterials for mechanical application

### Masters (Completed – 14; On-going – 2)

Sl. No.	Name	Dept./Center	Supervisor/Co-Supervisor	Area of Research	Comments
1	Gaurav Mittal	Center of Nanotechnology	Supervisor	Field emission	Graduated in June 2014
2	Sameer Chouksey	Center of Nanotechnology	Co- Supervisor (Dr. D. Lahiri as Supervisor)	Li-ion battery	Graduated in June 2014
3	Krishna Saini	Center of Nanotechnology	Supervisor	Synthesis of CuO nanostructures	Graduated in June 2015
4	Amit Tripathy	Metallurgical & Materials Engineering	Supervisor	Synthesis of patterned CNTs	Graduated in June 2015
5	Vaibhav Jain	Metallurgical & Materials Engineering	Supervisor	Field emission	Graduated in June 2015
6	Kavitha	Center of Nanotechnology	Supervisor	Graphene synthesis	Graduated in June 2016
7	Nikhil Mohandas	Metallurgical & Materials Engineering	Supervisor	RGO synthesis and applications	Graduated in June 2016
8	Mukul Srivastava	Metallurgical & Materials Engineering	Co- Supervisor (Dr. D. Lahiri as Supervisor)	Graphene based composites	Graduated in June 2016
9	Teekaram Madhukar	Center of Nanotechnology	Supervisor	Graphene-polymer composites	Graduated in June 2017
10	Rakesh Kumar Meena	Metallurgical & Materials Engineering	Supervisor	Graphene-aluminium composite	Graduated in June 2017
11	Jagdish Chandra Arya	Metallurgical & Materials Engineering	Supervisor	NiO-graphene hybrid	Graduated in June 2017
12	Amlan Baishya	Metallurgical & Materials Engineering (IDD)	Supervisor	Adhesion energy of 1D nanostructures	Graduated in June 2017
13	Vishal Panwar	Metallurgical & Materials Engineering	Supervisor	CuO nanostructures	Graduated in June 2018
14	Pratik Rekhate	Center of Nanotechnology	Supervisor	Graphene based composites	Graduated in June 2018
15	Shubhanshu Singh	Center of Nanotechnology	Supervisor	Graphene derivatives	
16	P. Yamini	Metallurgical & Materials Engineering	Supervisor (work to be done in Tata Steel)	Graphene for conducting applications	

### Undergraduate (Groups: Completed – 24; On-going – 2)

Sl. No.	Name	Status	Active Year of Research	Area of Research
1	Shikhar Gupta Siddharth Gupta Vipul Tiwari	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2013-14	Synthesis of Reduced Graphene Oxide

2	Swapnil Parkhe Rahul Agarwal Pratibh Vijay Sirowa	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2013-14	Developing carbon nanotube based composite materials for lithium ion battery electrodes (Co-PI: D. Lahiri)
3	Himanshu Garg Gopesh Kumar Mahendra Kumar Meena	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2013-14	Nanofillers reinforced (Cu based structural) composites for electrical application (Co-PI: D. Lahiri)
4	Shubham Gupta	3 <sup>rd</sup> year, MMED	Autumn 2013	Synthesis of graphene
5	Hemant Charaya M. Karthick Akshay V. Singhal	3 <sup>rd</sup> and 2 <sup>nd</sup> year, MMED	Autumn 2013	Synthesis and application of RGO
6	M. Karthick Apratim Khandelwal	2 <sup>nd</sup> year, MMED	Summer 2014 (Summer Undergraduate Research Assistantship)	Electrochemical exfoliation for synthesis of graphene
7	Chayan Sengar	2 <sup>nd</sup> year, MMED	Summer 2014	Cu-Cr based contact materials
8	Arvind Dasgupta Gaurav Modi K. Sudheer	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2014-15	Field emitter
9	Akshay V. Singhal Hemant Charya Siddharth Jain	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2014-15	Graphene-NP hybrid structure
10	Lakshman N. Sashidhar Ananya Shrivastava	2 <sup>nd</sup> year, MMED	Summer 2015 (Summer Undergraduate Research Assistantship)	Graphene synthesis by CVD on Ni-based substrates
11	Mahak Agarwal Aditya Mishra	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2015-16	Carbon nanotube synthesis on tungsten substrate
12	Md. Rasheed Alam Md. Amid	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2015-16	Carbon nanotube synthesis at low temperatures
13	K. N. Sashidhar Lakshman N. Chakrav	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2016-17	RGO synthesis and applications
14	Hemlata Borana Manwar Alisha Anil	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2016-17	Ni-graphene hybrid
15	Nitin Patel Prithavi Chand	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2016-17	Graphene-polymer composites
16	Shubham Gandhi Manuj Dixit	2 <sup>nd</sup> year, MMED	Summer 2016 (Summer Undergraduate Research Assistantship)	CNT growth on aluminum
17	Shubham Gandhi Manuj Dixit	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2017-18	Transparent Conducting Electrode Materials for Flexible Electronics

18	Ravish Mehta Rishabh Jha	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2017-18	Porous silicon based field emitters
19	Deepanjan Majhee Mayank Gupta	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2017-18	Graphene- Piezoelectric Nanogenerators for Flow-Induced Energy Generation
20	Abhimanyu Rawat Nupur Sanjay Rane	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2017-18	Polymer Composite in Self Healing Applications
21	Tishant Chandrakar	2 <sup>nd</sup> year, MMED	Summer 2017 (Summer Undergraduate Research Assistantship)	Graphene growth on textured copper foils
22	Vivek Bothra	3 <sup>rd</sup> year, MMED, IEST, SHibpur	Summer 2018, SPARK intern	Complex oxide nanostructures
22	Samarth Agarwal Tishant Chandrakar	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2018-19	Reduced graphene oxide synthesis
23	Pankajesh Kumar Neeraj Agrawal	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2018-19	Graphene growth on Ni-Cu alloy
24	Raj Maheswari Ankit Kumar Singh	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2018-19	Nanostructure formation on Cu-Ni alloy
25	Shubhit Chouhan Subhash Chandra	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2019-20	Supercapacitors
26	Yusuf Khan Spandan Chudhury	4 <sup>th</sup> year, MMED (B.Tech. Major Project)	2019-20	Supercapacitors

## Honours & Achievements

- ❖ Winner of **2012 ASM International Student Paper Contest** by **ASM International** (awarded during MS&T 2012, Pittsburgh, PA, USA, Oct. 7-11, 2012).
- ❖ Won **TMS Student Best Paper Contest 2011– Graduate Level – 2<sup>nd</sup> Place** (awarded during TMS 2012 Annual Meeting, Orlando, FL, Mar. 11-15, 2012).
- ❖ Awarded **Graduate Excellence in Materials Science (GEMS) Award 2011 – Sapphire** by Basic Science Division, **American Ceramic Society** (awarded during MS&T 2011, Columbus, OH, USA, Oct. 16-20, 2011). (*ACerS Bulletin*, Vol. 91, No. 1, January 2012, p. 8)
- ❖ Awarded **Second prize** in **The Best Junior Researcher Award in 2011 Nanomaterials Symposium, TMS 2011**, San Diego, USA, 27 Feb -3 March, 2011.
- ❖ Awarded “**Best Doctoral Graduate**” among all departments of College of Engineering, Florida International University, in Fall 2011 Commencement, Dec. 12, 2011.
- ❖ Recipient of **Dissertation Year Fellowship, FIU**, Spring-Fall 2011.
- ❖ Recipient of **Doctoral Evidence Acquisition Fellowship, FIU**, Summer-Fall 2010.

- ❖ Selected as Student Board Member in **ASM International - Board of Trustees, 2010-11.**  
(<http://www.asminternational.org/content/docs/Lahiri.pdf>)
- ❖ **Travel Grants** for conferences:
  - *Attendee-Assistance Support* from the organizers of 2011 Nanoelectronic Devices for Defense & Security (NANO-DDS) Conference, Aug. 29- Sept. 2, 2011, Brooklyn, NY, USA
  - *Student Travel Grant* from TMS – Electronic, Magnetic, & Photonic Materials Division, TMS 2011 Annual Meeting, San Diego, USA, 27 Feb -3 March, 2011
  - *Student Travel Grant* from Electro Chemical Society (ECS) – Battery Division, 218<sup>th</sup> ECS Meeting, Las Vegas, USA, 10-15 October, 2010
  - *Conference Travel Awards* from Student Government Association, FIU for
    - TMS 2009
    - MRS Fall 2009
    - MS&T 2011
- ❖ **5 Awards in events** organized by Material Advantage - FIU chapter
- ❖ Included in *Marquis' Who's Who in the World*, 2009.

### Affiliation to Professional Societies

- Materials Research Society of India (MRS-I) – Life Member
- Indian Institute of Metals (IIM) – Life Member
- Biomedical Engineering Society – Founder Member

### Other Leadership Activities

- **Faculty Advisor**, Material Advantage, IIT Roorkee chapter, since its inception in 2014.
- **Served** as “Student Board Member” in **Board of Trustees – ASM International**, 2010-11, USA.  
(<http://www.asminternational.org/content/docs/Lahiri.pdf>)
- **Chair** (2009-10), Material Advantage chapter, FIU, USA.
- **Secretary** (2008-09), Material Advantage chapter, FIU, USA.
- **Led** Material Advantage chapter at FIU to win several international accolades including ASM Materials Education Foundation Grant, Fall Membership Challenge - Most Innovative Recruitment Strategy Award), World Materials Day Award and Chapter of Excellence Awards (2 times).
- **In-charge** of SEM, thermal CVD system, field emission characterization system, battery testing unit, FIU, USA.
- **In-charge** of “Materials Testing Lab.”, “Nanomaterials by mechanical alloying” group, **Principal coordinator** for “Alloy melting, processing and testing” group, **coordinator** for many sponsored projects from ISRO, BEL, BHEL, Indian Navy etc., NFTDC, Hyderabad, India.

### Other Professional Activities

- ❖ **Spin-off** from Nanomaterials and Applications Lab – Log9 Materials (Founded by Akshay V. Singhal, an undergraduate and PhD student of our lab)
- ❖ **Key Reader (Member of Board of Review)** for formerly Metallurgical and Materials Transactions E.
- ❖ **Reviewer** for
  1. Metallurgical and Materials Transactions A (Received 'Letter of Appreciation' **thrice** from the Editor for '*Excellent*' reviews) (Publisher: ASM International and TMS)
  2. Surface and Coatings Technology (Publisher: Elsevier)
  3. Materials Science and Engineering A (Publisher: Elsevier)
  4. New Journal of Chemistry (Publisher: Royal Society of Chemistry, London)
  5. RSC Advances (Publisher: Royal Society of Chemistry, London)
  6. Journal of Physics and Chemistry of Solids (Publisher: Elsevier)
  7. Current Applied Physics (Publisher: Elsevier)
  8. Chemical Communications (Publisher: Royal Society of Chemistry, London)
  9. Journal of Materials Engineering and Performance (Publisher: ASM International)
  10. Materials Characterization (Publisher: Elsevier)
  11. Journal of Materials Processing Technology (Publisher: Elsevier)
  12. Powder Technology (Publisher: Elsevier)
  13. Nanomaterials and Energy (Publisher: ICE Publishing)
  14. Materials Letters (Publisher: Elsevier)
  15. ACS Applied Materials and Interfaces (Publisher: American Chemical Society)
  16. Journal of Alloys and Compounds (Publisher: Elsevier)
  17. MRS Symposium Proceedings (Publisher: Materials Research Society)
  18. Bulletin of Materials Science (Publisher: Springer)
  19. Journal of Electronic Materials (Publisher: Springer)
  20. Proceedings of the National Academy of Sciences, India Section A: Physical Sciences (Publisher: Springer)
  21. Philosophical Magazine Letters (Publisher: Taylor & Francis)
  22. Surface and Interface Analysis (Publisher: Wiley)
  23. Chemical Physics Letters (Publisher: Elsevier)
  24. Ceramics International (Publisher: Elsevier)
  25. Journal of Materials Science: Materials in Electronics (Publisher: Springer)
  26. Particle and Particle Systems Characterization (Publisher: Wiley)
- ❖ **External Grant Proposal Reviewer** for Georgia National Science Foundation.
- ❖ **External Grant Proposal Reviewer** for National Research Council, Romania.
- ❖ **Proposal Reviewer** for **SERB, DST, India**
- ❖ **Book Proposal Reviewer** for Elsevier Publishing
- ❖ **Book Proposal Reviewer** for CRC Press (Taylor & Francis Group LLC)

- ❖ **Visiting researcher** in WCU Department of Energy Engineering, Hanyang University, Seoul, Korea, May-June 2009.
- ❖ **Offered** “Nanotechnology Classes” (including seminar and interesting hands-on demonstration) on recent advances in nanotechnology and its impact on community, to high school students of “Coral Park Senior High School” several times during 2009-10. **Received ‘letter of appreciation’** from Office of Intergovernmental Affairs and Community Engagement, Miami-Dade County, Florida, USA – for this community service.

Information updated on 30<sup>th</sup> April 2019