

Dr. Pramoda Kumar Nayak (BIO-DATA)

1. Name: **Dr. Pramoda Kumar Nayak**, Room No # 433 , Centre for Nano and Material Sciences, Jain (Deemed-to-be-University), Jain Global Campus, Bangalore 562112, Karnataka, India.
2. Email(s) and contact number(s): pramoda.nayak@jainuniversity.ac.in,
Ph: +91-8328964969/8149410198
3. Institution: Jain (Deemed-to-be-University), Jain Global Campus, Kanakapura, Bangalore
4. Date of Birth: 6th June 1978
5. Gender (M/F/T): M
6. Category Gen/SC/ST/OBC: Gen
7. Whether differently abled (Yes/No): No
8. Academic Qualification and experience

Sl. No	Date of completion of Ph.D	Total number of Publications during Ph.D	Total number of Publications Post Ph.D	Total teaching exp. (years)	Total UG teaching exp. (years)	Total PG teaching exp. (years)	Total Post Ph.D. teaching exp. (years)	Total Post Ph.D. research exp. (years)
1.	2007	08	58	6 and half	05	6 and half	6 and half	16 and half

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

PhD Thesis title: Excess Conductivity, Magneto-Conductivity and AC Susceptibility Studies in La-Ba-Ca-Cu-O Superconductors

Guide's Name: Professor S. Ravi

University: Indian Institute of Technology Guwahati, India

Year of Award: 2007

Research Interests

2D Quantum Materials

Van der Waals Heterostructures

Light-matter interaction in Nanoscale

Optoelectronics

Blue Energy

Thermoelectrics

10. Work experience (in chronological order).

1. Associate Professor, Centre for Nano and Material Sciences, Jain (Deemed-to-be-University), Jain Global Campus, Kanakapura, Bangalore, India. 2022- present
2. Ramanujan Fellow, Department of Physics, IIT Madras, Chennai, India. 2017 –2022
3. Research Scientist, Low Dimensional Carbon Materials Center, UNIST, South Korea. January 2015 – March 2017.
4. Research Fellow, Department of Electrical Engineering, National Tsing Hua University, Taiwan. February 2013 – December 2014.
5. Post-Doctoral Fellow, Department of Materials Science and Engineering, National Cheng Kung University, Taiwan. May 2009- December 2012.
6. Post-Doctoral Fellow & Visiting Scientist, Magnet Division, Institute for Plasma Research, Gandhinagar, India. March 2007- April 2009.

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

1. Academic excellence, Best Scientist Award by EET CRS, 2020
2. Academic excellence, Young Achiever Award by Institute of scholars (InSc), 2020
3. National Award, Ramanujan Fellowship by DST, Government of India, July 2017
4. TACT (International Thin Film Conference) outstanding dissertation award, November 2015.
5. Research Fellowship, “BK21Plus (Brain Korea 21 Program for Leading Universities & Students) Project” funded by Korean Government, 2015

12. List of sponsored Projects (08 with total value close to 600 Lakhs)

Ongoing Project (03)

- 1) STARS Grant, MHRD: (role: PI) **99 Lakhs** (2020-2024).
Title: Fundamental study of organic solvent transport in nanochannels for energy and environment applications
- 2) STARS Grant, MHRD: (role: Co-PI) **Rs.97 Lakhs** (2020-2024).
Title: Quantum Emitters based on atomic defects in diamond and 2D materials.
- 3) CRG GRANT, SERB: (role: PI) **60 Lakhs** (2024-2026). Approved
Title: In-situ growth of large area twisted van der Waals Heterostructures

Completed Project (05)

- 4) Ramanujan Grant, SERB: (role: PI) **114 Lakhs** (2017-2022)
Title: Surface Dominated Electronic Transport in Lateral and Vertical Two Dimensional Layered Topological Insulator Heterostructures
- 5) CRG Grant, DST: (role: Co-PI) **57 Lakhs** (2019-2021)
Title: Integration of PZT with 2D layered MoS₂ for low power non-volatile memory and broad band photodetectors Rapid Switching using nano logic circuit.
- 6) IMPRINT 2C Grant, MHRD & DST: (role: Co-PI) **88 Lakhs** (2019-2023)
Title: Flexible Quantum Light Emitting Devices from van der Waals layered Materials
- 7) MRP Grant, Jain University: (role: PI) **02 Lakhs** (2022-2023)
Title: Study of Light matter interaction in van der Waals Heterostructures
- 8) CRG Grant, Exponential Research, DST: (role: Co-PI) **Rs.70 Lakhs** (2020-2023).

Title: Fundamental study of polar liquids inside slit-like nanochannels

13. Publications (List of publications in SCI Journals, in year wise descending order).

1. Investigating the effect of H⁺-ion irradiation on layered α -MoO₃ flakes by defect engineering
Ravindra Kumar⁺, Vikash Mishra⁺, Tejendra Dixit, S. N. Sarangi, D. Samal, Muralidhar Miryala,
Pramoda K. Nayak *, M.S. Ramachandra Rao *
Applied Physics Letters 123 (2023), 151104 (I.F. = 3.97)
DOI:10.1063/5.0166452
2. Probing angle dependent thermal conductivity in twisted bilayer MoSe₂
Manab Mandal, Nikhilesh Maity, Prahalad Kanti Barman, Ashutosh Srivastava, Abhishek K
Singh, **Pramoda K Nayak***, K. Sethupathi*
Physical Review B 108 (2023) 115439 (I.F. = 3.91)
DOI: 10.1103/PhysRevB.108.115439
3. Observation of positive trions in α -MoO₃/MoS₂ van der Waals heterostructures
Ravindra Kumar, Vikash Mishra, Tejendra Dixit, Prahalad Kanti Barman, **Pramoda K. Nayak***,
M.S.R. Rao*
Nanoscale, 15 (2023) 12358-12365. (I.F. = 6.98)
DOI: 10.1039/D3NR01480K
4. All-Atom Molecular Dynamics Simulations of Communication Between Nanochannel Arrays
D Manikandan, **Pramoda K Nayak***
ACS Applied Nano Materials, 6 (2023) 11640–11650. (I.F. = 6.14)
DOI: 10.1021/acsnm.3c01629
5. Strain relaxation in monolayer MoS₂ over flexible substrate
Nilanjan Basu, Ravindra Kumar, D Manikandan, Madhura Ghosh Dastidar, Praveen Hedge,
Pramoda K. Nayak*, Vidya Praveen Bhallamudi*
RSC advances, 13 (2023) 16241-16247. (I.F. = 4.04)
DOI: 10.1039/D3RA01381B
6. Laser-Assisted Scalable Pore Fabrication in Graphene Membranes for Blue-Energy Generation
Sharad Kumar Yadav, Chob Singh, Mukesh Kumar, Sundara Ramaprabhu, Vishal VR Nandigana,
Pramoda K. Nayak*
ChemPhysChem, 24 (2023) e202200598. (I.F. = 3.52)
DOI: 10.1002/cphc.202200598
7. Pulsed Carrier Gas Assisted High Quality Synthetic 3R-phase Sword-like MoS₂: A Versatile
Optoelectronic Material,
Ramesh Rajarapu, Prahalad Kanti Barman, Renu Yadav, Rabindra Biswas, Manikandan D, Saroj
Poudyal, Bubunu Biswal, Vijay Laxmi, Gopal K. Pradhan, Varun Raghunathan, **Pramoda K.
Nayak,*** and Abhishek Misra*
ACS Nano, 16 (2022) 21366-21376. (I.F. = 18.03)
DOI: 10.1021/acsnano.2c09673

8. Electrodifusioosmosis induced negative differential resistance in micro-to-millimeter size pores through graphene/copper membrane
S. K. Yadav, Manikandan B, Chob Singh, Mukesh Kumar, Vishal V. R. Nandigana, and **Pramoda K. Nayak***
Nanoscale Advances, 4 (2022) 5123-5131. (I.F. = 5.11)
DOI: 10.1039/D2NA00443G

9. Design and development of an automated experimental setup for ion transport measurements
S. K. Yadav, M. Kumar, S. Ramaprabhu, V. Nandigana, and **Pramoda K. Nayak***
Review of Scientific Instruments, 93 (2022) 064104. (I.F. = 1.58)
DOI: 10.1063/5.0086296

10. Layer parity dependent Raman-active modes and crystal symmetry in ReS₂
Pranshoo Upadhyay, Nikhilesh Maity, Ravindra Kumar, Prahallad K. Barman, Abhishek K. Singh*, **Pramoda K. Nayak***
Phy. Rev. B, 105 (2022) 045416. (I.F. =4.04)
DOI: 10.1103/PhysRevB.105.045416

11. Twist dependent tuning of exciton emissions in bilayer WSe₂.
Prahallad K. Barman, Pranshoo Upadhyay, Sharad Kumar Yadav, Ramesh Rajarappu, Latha K.V. P., Meenakshisundaram N, **Pramoda K. Nayak***
ACS Omega, 7 (2022) 6412–6418. (I.F. =4.13)
DOI: 10.1021/acsomega.1c07219

12. Quantum emitters and detectors based on 2D van der Waals Materials
Madhura G. Dastidar, Immanuel Thekkooden, **Pramoda K. Nayak ***, Vidya P. Bhallamudi*
Nanoscale, 14 (2022) 5289-5313. (I.F. = 8.30)
DOI: 10.1039/D1NR08193D

13. Substrate dependent thermal conductivity in Td-WTe₂ using micro-Raman spectroscopy
Vijay Laxmi, Nilanjan Basu and **Pramoda K. Nayak***
J. Raman Spectrosc., (2022) 1–8. (I.F. = 3.13)
DOI: 10.1002/jrs.6455

14. Interlayer excitonic states in a MoSe₂/MoS₂ van der Waals heterostructure
Ankit Arora, **Pramoda K. Nayak***, Swastibrata Bhattacharya, Nikhilesh Maity, Abhishek K. Singh, Ananth Krishnan*, M.S. Ramachandra Rao*
Phy. Rev. B, 103 (2021) 205406. (I.F. = 4.04)
DOI: 10.1103/PhysRevB.00.005400

15. Study of thermometry in two-dimensional Sb₂Te₃ from temperature dependent Raman spectroscopy,
Manavendra P. Singh, Manab Mandal, K. Sethupathi, M.S. Ramachandra Rao, **Pramoda K. Nayak***, *Nanoscale Research Letters*, 16 (2021) 22. (I.F. = 4.70)
DOI: 10.1186/s11671-020-03463-1

16. Sequential growth of two-dimensional MoSe₂-WSe₂ lateral heterojunctions.
Sharad Kumar Yadav, Vishal V. R. Nandigana, **Pramoda K. Nayak***,

AIP Conference Proceedings, 2265 (2020) 030699.
DOI: 10.1063/5.0018023

17. Stacking angle dependent multiple excitonic resonances in bilayer tungsten diselenide.
Ankit Arora, **Pramoda K. Nayak***, Tejendra Dixit, K. Lakshmi Ganapathi, Ananth Krishnan*, M.S. Ramachandra Rao*
Nanophotonics, 9 (2020) 3881-3887. (I.F. = 8.45)
DOI: 10.1515/nanoph-2020-0034
18. Plasmon Assisted Selective Enhancement of Direct Band Transitions in Multi-layer MoS₂.
Tejendra Dixit, Ankit Arora, Muralidhra Miryala, Masato Murakami, **Pramoda K. Nayak**, K. Lakshmi Ganapathi, M.S. Ramachandra Rao*
IEEE Photonics 11 (2019) 1-6. (I.F. = 2.73)
DOI: 10.1109/JPHOT.2019.2935000
19. Plasmon induced brightening of dark exciton in mono-layer WSe₂ for quantum optoelectronics,
Ankit Arora, Tejendra Dixit, Anil Kumar K V, Sivarama Krishanan K. Lakshmi Ganapathi, Ananth Krishnan*, **Pramoda K. Nayak***, M.S. Ramachandra Rao*
Appl. Phys. Lett., 114 (2019) 201101. (I.F.= 3.79)
DOI: 10.1063/1.5093664 (*This work was highlighted in "The Hindu"*)
20. Direct Growth of Graphene on Insulator Using Liquid Precursor via an Intermediate Nano Structured State Carbon Nanotube,
Pramoda K. Nayak*
Nanoscale Research Letters, 14 (2019)1-9. (I.F.= 4.70)
DOI: 10.1186/s11671-019-2935-9 (single author paper)
21. Resonantly hybridized excitons in moiré superlattices in van der Waals heterostructures
Evgeny M. Alexeev, David A. Ruiz-Tijerina, Mark Danovich, Matthew J. Hamer, Daniel J. Terry, **Pramoda K. Nayak, et al.** Kostya S. Novoselov, Roman V. Gorbachev, Hyeon Suk Shin, Vladimir I. Fal'ko, Alexander I. Tartakovskii
Nature 567 (2019) 81-86. (I.F. = 49.96)
DOI: 10.1038/s41586-019-0986-9 (*This work was highlighted in "The Hindu BusinessLine"*)
22. Pulsed-grown graphene for flexible transparent conductors
Pramoda K. Nayak*
Nanoscale Advances 1(2019) 1215-1223. (I.F.= 4.55)
DOI: 10.1039/C8NA00181B (single author paper)
23. Near Infrared Random Lasing in Multilayer MoS₂
Tejendra Dixit, Ankit Arora, Ananth Krishnan, K. Lakshmi Ganapathi*, **Pramoda K. Nayak***, M.S. Ramachandra Rao*
ACS Omega 3 (2018) 14097–14102. (I.F. = 3.51)
DOI: 10.1021/acsomega.8b01287
24. Hydrogenation of Monolayer Molybdenum Diselenide via Hydrogen Plasma Treatment

Kyung Yeol Ma, Seong In Yoon, A-Rang Jang, Hu Young Jeong, Yong Jin Kim, **Pramoda K. Nayak**, Hyeon Suk Shin
Journal of Material Chemistry C, 5 (2017) 11294-11300. (I.F. = 7.05)
DOI: 10.1039/C7TC02592K

25. Imaging of interlayer coupling in van der Waals heterostructures using a bright-field optical microscope
Evgeny M. Alexeev, Alessandro Catanzaro, Oleksandr V. Skrypka, **Pramoda K. Nayak**, Seongjoon Ahn, Sangyeon Pak, Juwon Lee, Jung Inn Sohn, Kostya S. Novoselov, Hyeon Suk Shin, Alexander I. Tartakovskii
Nano Letters 17 (2017) 5342–5349. (I.F. = 11.19)
DOI: 10.1021/acs.nanolett.7b01763
26. Probing Evolution of Twist Angle Dependent Interlayer Exciton in MoSe₂/WSe₂ van der Waals Heterostructures
Pramoda K. Nayak et al.
ACS Nano 11 (2017) 4041–4050. (I.F. = 15.88)
DOI: 10.1021/acsnano.7b00640 (*This work was highlighted in “The Pioneer”*)
27. Variation of crystallinity of Cu and Cu₂O nanowires arrays grown in various pores of porous alumina membrane
Yu-Min Shen, Wen-Fang Chiu, Sheng-Chang Wang, **Pramoda K. Nayak**, Dipti. R. Sahu, Jow-Lay Huang
Advanced Materials Letters, 8 (2017) 1046-1051. (I.F. = 1.46)
DOI: 10.5185/amlett.2017.1493
28. Prevention of Transition Metal Dichalcogenide Photodegradation by Encapsulation with h-BN Layers
Seongjoon Ahn, Gwangwoo Kim, **Pramoda K. Nayak**, Seong In Yun, Hyunseob Lim, Hyun-Joon Shin and Hyeon Suk Shin
ACS Nano, 10 (2016) 8973–8979. (I.F. = 15.88)
DOI: 10.1021/acsnano.6b05042
29. Robust Room Temperature Valley Polarization in Monolayer and Bilayer WS₂,
Pramoda K. Nayak, Fang-Cheng Lin, Chao-Hui Yeh, J.S. Huang and Po-Wen Chiu
Nanoscale, 8(2016) 6035-6042. (I.F. = 7.79)
DOI: 10.1039/C5NR08395H
30. Microstructure and wear behavior of spark plasma sintering sintered Al₂O₃/WC-based composite
Wei-Hsio Chen, Hao-Tung Lin, Jianmin Chen, **Pramoda K Nayak**, Alex C Lee, Horng-Hwa Lu, Jow-Lay Huang,
International Journal of Refractory Metals and Hard Materials, 84 (2016) 279-283. (I.F. = 3.87)
DOI: 10.1016/j.ijrmhm.2015.07.030
31. Effect of nanosized TiC_{0.37}N_{0.63} on unlubricated wear responses of Si₃N₄-based nanocomposites under low hertzian stress

Alex C Lee, Horng-Hwa Lu, Takashi Goto, Rong Tu, Hua-Tay Lin, Ding-Fu Lii, **Pramoda K. Nayak**, Jow-Lay Huang

Journal of American Ceramic Society, 99 (2016) 971-978. (I.F. = 3.78)

DOI: 10.1111/jace.14030

32. Enhanced mechanical properties of WC-reinforced Al₂O₃ ceramics via spark plasma sintering
Wei-Hsio Chen, **Pramoda K. Nayak**, Hao-Tung Lin, Alex C. Lee, Jow-Lay Huang
Ceramic International, 41 (2015) 1317-1321. (I.F. = 4.53)
DOI: 10.1016/j.ceramint.2014.09.063
33. Nanopowder processing of ultrafine Si₃N₄ with improved wear resistance
Alex C Lee, Horng-Hwa Lu, Hua-Tay Lin, Pavol Šajgalík, Ding-Fu Lii, **Pramoda K. Nayak**, Ching-Yu Chen, Jow-Lay Huang
Journal of Asian Ceramic Societies, 3 (2015) 06-12. (I.F. = 3.13)
DOI: 10.1016/j.jascer.2014.09.004
34. Sintering behavior and mechanical properties of WC-Al₂O₃ composites prepared by spark plasma sintering (SPS)
Wei-Hsio Chen, Hao-Tung Lin, **Pramoda K. Nayak**, Man-Ping Chang, Jow-Lay Huang
International Journal of Refractory Metals and Hard Materials, 48(2015) 414-417. (I.F. = 3.87)
DOI: 10.1016/j.ijrmhm.2014.10.016
35. Material properties of tungsten carbide-alumina composites fabricated by spark plasma sintering
Wei-Hsio Chen, Hao-Tung Lin, **Pramoda K. Nayak**, Jow-Lay Huang
Ceramic International 40 (2014) 15007-15012. (I.F. = 4.53)
DOI: 10.1016/j.ceramint.2014.06.102
36. Synthesis of nanostructured Tungsten Carbide via Metal-Organic Chemical Vapor Deposition and Carburization Process,
Wei-Hsio Chen, **Pramoda K. Nayak**, Hao-Tung Lin, Man-Ping Chang, and Jow-Lay Huang,
International Journal of Refractory Metals and Hard Materials, 47(2014) 44-48. (I.F. = 3.87)
DOI: 10.1016/j.ijrmhm.2014.06.015
37. Layer dependent optical conductivity in atomic thin WS₂ by reflection contrast spectroscopy
Pramoda K. Nayak, Chao-Hui Yeh, Yu-Chen Chen and Po-Wen Chiu
ACS applied Materials and Interfaces, 6 (2014) 16020-16026. (I.F. = 9.23)
DOI: 10.1021/am5039483
38. Probing interlayer coupling in twisted bilayer graphene by Raman spectroscopy
Chao-Hui Yeh, Yung-Chang Lin, **Pramoda K. Nayak**, Chun-Chieh Lu, Kazu Suenaga, Po-Wen Chiu,
Journal of Raman Spectroscopy, 45 (2014) 912-917. (I.F. = 3.13)
DOI: 10.1002/jrs.4571
39. Graphene Coated Ni Films: A Protective Coating
Pramoda K. Nayak, Chan-Jung Hsu, Sheng-Chang Wang, James C. Sung, Jow-Lay Huang
Thin Solid Films, 529 (2013) 312-316. (I.F. = 2.18)

DOI: 10.1016/j.tsf.2012.03.067

40. Microstructure analysis and mechanical properties of a new class of $\text{Al}_2\text{O}_3\text{-Cr}_2\text{O}_3/\text{Cr}_3\text{C}_2$ nanocomposite fabricated by spark plasma sintering
Pramoda K. Nayak, Hao-Tung Lin, Man-Ping Chang, Wei-Hsio Chen and Jow-Lay Huang
Journal of the European Ceramic Society, 33 (2013) 3095–3100. (I.F. = 5.30)
DOI: 10.1016/j.jeurceramsoc.2013.05.008
41. Mechanical properties of $\text{Al}_2\text{O}_3\text{-Cr}_2\text{O}_3/\text{Cr}_3\text{C}_2$ nanocomposite fabricated by spark plasma sintering Hao-Tung Lin, **Pramoda K. Nayak**, Bo-Zon Liu, Wei-Hsio Chen and Jow-Lay Huang
Journal of the European Ceramic Society, 32 (2012) 77–83. (I.F. = 5.30)
DOI: 10.1016/j.jeurceramsoc.2013.05.008
42. Indentation Deformation and Microcracking in $\beta\text{-Si}_3\text{N}_4$ Based Nanoceramic
Ching-Huan Lee, Horng-Hwa Lu, Takashi Goto, Rong Tu, Hao-Chi Liu, Chang-An Wang, Chiang-Rong Ruan, **Pramoda K. Nayak**, Qing-Yu Chen, Jow-Lay Huang
Journal of the American Ceramic Society 95(2012) 1421–1428. (I.F. = 3.78)
DOI: 10.1111/j.1551-2916.2012.05080.x
43. Spinodal Decomposition of Mono- to Few-Layer Graphene on Ni Substrates at a Relatively Low Temperature
Chan-Jung Hsu, **Pramoda K. Nayak**, Sheng-Chang Wang, James C. Sung, Chiang-Lun Wang, Chung-Lin Wu and Jow-Lay Huang
Journal of Nanoscience and Nanotechnology, 12 (2012) 2442–2447. (I.F. = 1.35)
DOI: 10.1166/jnn.2012.5799
44. Growth of single crystal SiC by liquid phase epitaxy using Sm/Co as unique solvent
Sheng-Chang Wang, **Pramoda K. Nayak**, You-Ling Chen and Jow-Lay Huang
Journal of Nanoengineering and Nanosystems, 226 (2012) 75–79.
DOI: 10.1177/1740349912445969
45. Microstructure Investigation of SiC Films Synthesized from Liquid Phase in Sm-Co melts
Pei-Ting Lee, **Pramoda K. Nayak**, Sheng-Chang Wang, James C. Sung and Jow-Lay Huang,
Superlattices and Microstructures, 50 (2011) 634–646. (I.F. = 2.66)
DOI: 10.1016/j.spmi.2011.09.005
46. Electron-Energy Loss Spectroscopy and Raman Studies of Nanosized Chromium Carbide Synthesized During Carbothermal Reduction Process from Precursor $\text{Cr}(\text{CO})_6$
Hao-Tung Lin, **Pramoda K. Nayak**, Sheng-Chang Wang, Shin-Yun Chang and Jow-Lay Huang
Journal of the European Ceramic Society, 31 (2011) 2481–2487. (I.F. = 5.30)
DOI: 10.1016/j.jeurceramsoc.2010.12.005
47. Microstructural Analysis of Single Crystal SiC Prepared by Novel Liquid Phase Epitaxy
Sheng-Chang Wang, **Pramoda K. Nayak**, You-Ling Chen, James C. Sung and Jow-Lay Huang,
Ceramics International, 37 (2011) 3671–3676. (I.F. = 4.53)
DOI: 10.1016/j.ceramint.2011.06.028
48. Study of color change and microstructural development of $\text{Al}_2\text{O}_3\text{-Cr}_2\text{O}_3/\text{Cr}_3\text{C}_2$ nanocomposites prepared by spark plasma sintering

Hao-Tung Lin, Bo-Zon Liu, Wei-hsio Chen, Jow-Lay Huang and **Pramoda K. Nayak**
Ceramics International, 37 (2011) 2081-2087. (I.F. = 4.53)
DOI: 10.1016/j.ceramint.2011.02.018

49. Microstructure and fracture behaviour of β -Si₃N₄ based nanoceramics
Ching-Huan Lee, Horng-Hwa Lu, Chang-An Wang, Wen-Tse Lo, **Pramoda K. Nayak** and Jow-Lay Huang
Ceramics International 37 (2011) 641-645. (I.F. = 4.53)
DOI: 10.1016/j.ceramint.2010.10.009
50. Effect of heating rate on spark plasma sintering of a nanosized β -Si₃N₄ based powder
Ching-Huan Lee, Horng-Hwa Lu, Chang-An Wang, **Pramoda K. Nayak**, and Jow-Lay Huang
Journal of the American Ceramic Society, 94 (2011) 1182-1190. (I.F. = 3.78)
DOI: 10.1111/j.1551-2916.2010.04196.x
51. Influence of conductive nano-TiC on microstructural evolution of Si₃N₄ based nanocomposites in spark plasma sintering (SPS)
Ching-Huan Lee, Horng-Hwa Lu, Chang-An Wang, **Pramoda K. Nayak**, and Jow-Lay Huang
Journal of the American Ceramic Society, 94 (2011) 959-967. (I.F. = 3.78)
DOI: 10.1111/j.1551-2916.2010.04150.x
52. Microstructure and mechanical properties of TiN/Si₃N₄ based nanocomposites by spark plasma sintering (SPS)
Ching-Huan Lee, Horng-Hwa Lu, Chang-An Wang, **Pramoda K. Nayak** and Jow-Lay Huang
Journal of Alloys and Compounds 508 (2010) 540-545. (I.F. = 5.32)
DOI: 10.1016/j.jallcom.2010.08.116
53. Carbothermal Reduction Process for Synthesis of Nanosized Chromium Carbide via Metal Organic Chemical Vapor Deposition
Sheng-Chang Wang, How-Tung Lin, **Pramoda K. Nayak**, Shin-Yun Chang and Jow-Lay Huang
Thin Solid Films 518 (2010) 7360-7365. (I.F. = 2.18)
DOI: 10.1016/j.tsf.2010.05.001
54. Phase Composition and Photoluminescence Properties of RF Sputtered Pure and Sm³⁺ doped ZrO₂ Thin Films
Pramoda K. Nayak, Wei-Jung Kao, Diptiranjana Sahu and Jow-Lay Huang,
Journal of the American Ceramic Society 93 (2010) 3481-3485. (I.F. = 3.78)
DOI: 10.1111/j.1551-2916.2010.03881.x
55. Characterization of ordered Cu₂O nanowire arrays prepared by heat treated Cu/PAM composite
Yu-Min Shen, Yueh-Ting Shih, Sheng-Chang Wang, **Pramoda K. Nayak** and Jow-Lay Huang
Thin Solid Films 519 (2010) 1687-1692. (I.F. = 2.18)
DOI: 10.1016/j.tsf.2010.08.087
56. Evolution of Binary Phase TiC/Ti₃SiC₂ Composites from Ti/TiC/Si by Hot Pressed Reactive Sintering
Wen-Tse Lo, **Pramoda K. Nayak**, Horng-Hwa Lu, Ding-Fwu Lii and Jow-Lay Huang

Materials Science and Engineering B **172** (2010) 18-23. (I.F. = 4.05)
DOI: 10.1016/j.mseb.2010.04.006

57. Design and Fabrication of a High Tc BSCCO based Square Helmholtz Coil
P. K. Nayak, U. Prasad, A. Amardas, D. Patel & S. Pradhan
Journal of Physics: Conference Series, 208 (2010) 012021.
DOI:10.1088/1742-6596/208/1/012021
58. I-V characteristics and Magnetic field profile studies in High Tc BSCCO based Helmholtz Coil
P. K. Nayak, U. Prasad, A. N. Sharma, D. Patel, S. Kedia & S. Pradhan
Physica C, 469 (2009) 211-215. (I.F. = 1.24)
DOI: 10.1016/j.physc.2009.01.013
59. Study of Critical Current Density from ac Susceptibility Measurements in $(La_{1-x}Y_x)_2Ba_2CaCu_5O_z$ Superconductors
P. K. Nayak and S. Ravi
Indian J. Phys. 82 (2008) 603-610. (I.F. = 1.40)
DOI: IN0801444087241
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 DOI: 10.1007/s10582-005-0009-y

14. Detail of patents:

1. Vishal. R. Nandigana, **Pramoda K. Nayak**, Sivarama Krishnan, Sharad Kumar Yadav, Aswathy gopalalrishnan
 Osmotic power generation system
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2. **Pramoda K. Nayak**, V.P. Bhallamudi, Nilanjan Basu, Vijay Laxmi, Madhura Ghosh Dastidar
 Process of fabricating heterostructures with two-dimensional materials
Indian patent (2023) Grant No: 444786
3. Ramesh Rajarapu, **Pramoda K. Nayak**, Abhishek Misra
 Method to synthesize a rhombohedral (R) phase transition metal dichalcogenide (TMD) and implementation thereof.
Indian patent (2023) Grant No: 436898

15. Books/Reports/Chapters/General articles etc.

Books

1. Solid State Physics: Metastable, Spintronics Materials and Mechanics of Deformable Bodies-Recent Progress
 Edited by Subbarayan Sivasankaran, **Pramoda Kumar Nayak** and Ezgi Günay,
 ISBN 978-1-83881-165-5, **Publisher:** InTech, Rijeka, published May 27, 2020
2. Two-dimensional materials for Photodetector
 Edited by **Pramoda Kumar Nayak**
 ISBN: 978-953-51-3952-2, **Publisher:** InTech, Rijeka, published April 04, 2018
3. 2D Materials- Synthesis, Characterization and Potential Applications
 Edited by **Pramoda Kumar Nayak**
 ISBN 978-953-51-2555-6, **Publisher:** InTech, Rijeka, published August 31, 2016.
4. Recent Advances in Graphene Research
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5. La-Ba-Ca-Cu-O superconductors: Synthesis and Characterization
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Book Chapters

1. Jow-Lay Huang and **Pramoda K. Nayak**
Strengthening Alumina Ceramic Matrix composites using spark plasma sintering. Advances in Ceramic Matrix Composites, Edited by I. M. Low, 2nd Edition, Woodhead Publishing, An Imprint of Elsevier, Cambridge, Chapter-10, January 2018, pp.231-245. **ISBN:** 978-0-08-102166-8.
2. Jow-Lay Huang and **Pramoda K. Nayak**
Microstructure Evolution and Mechanical Properties of Silicon Nitride based Ceramics Sintered by Spark Plasma Sintering (SPS), Recent Advances in Ceramic Materials Research, Joan Josep Roa Rovira et al (Eds), NOVA Publishers, Hauppauge, New York, eBook, Chapter-7, 2013, pp. 177-214. **ISBN:** 978-1-62417-729.
3. Jow-Lay Huang and **Pramoda K. Nayak**
Effect of Nano-TiN on Mechanical Behavior of Si₃N₄ based Nanocomposite by Spark Plasma Sintering (SPS), Nanocomposites-New Trends and Developments, Farzad Ebrahimi (Ed.), InTech, Chapter-16, pp. 421-436, September, 2012. ISBN 978-953-51-0762-0
4. Yu-Min Shen, **Pramoda K. Nayak**, Sheng-Chang Wang and Jow-Lay Huang
Synthesis of Cu₂O and ZnO Nanowire Arrays by Electrochemical Deposition Process, Electrodeposition: Properties, Processes, and Applications, Udit Surya Mohanty(Ed.), Nova, chapter-6, 2012, pp. 117-140. ISBN: 978-1614708261
5. Jow-Lay Huang and **Pramoda K. Nayak**
Processing and Characterization of Alumina/Chromium Carbide Ceramic Nanocomposite, Advances in Nanocomposite Technology, Abbass Hashim (Ed.), InTech, Chapter -7, pp. 147-174, July, 2011. ISBN 978-953-307-347-7

Research Reports:

1. Estimation of Critical Current density (J_c) and 'n' from I-V characteristics of Ex-situ MgB₂ Strand
Pramoda K. Nayak, A. Amardas, S. Kedia, D. Patel, J. Parmar, U. Syamaprasad & S. Pradhan
IPR/RR- 431/2009
2. Design and Fabrication of a High T_c BSCCO based Square Helmholtz Coil.
Pramoda K. Nayak, U. Prasad, A. N. Sharma, D. Patel and S. Pradhan
IPR/RR- 426/2008
3. Neutron Irradiation Effect on BSCCO and YBCO Tape
Pramoda K. Nayak, Basanta Das, Upendra Prasad, Dipak Patel, Sunil Kedia, Anurag Shyam & S. Pradhan
IPR/RR- 414/2008
4. Field Characterization of HTS Helmholtz coils
Pramoda K. Nayak, U. Prasad, A. N. Sharma, D. Patel and S. Pradhan

IPR/RR- 398/2007

Technical Reports:

1. Calculation of AC losses in Commercial Grade Bi (2223) tape by AC susceptibility Technique.
Pramoda K. Nayak, U. Prasad, A. N. Sharma, S. Kedia, D. Patel, Y. Kristi, V. Amin and S. Pradhan
IPR/TR-130/2007
2. Low Resistance Measurements in Cryogenic Temperature.
Yohan Khristi, **Pramoda K. Nayak**, Kalpesh Doshi, V. Amin, S. Kedia, A.N. Sharma, U. Prasad,
D. Patel, Dinesh Patel and S. Pradhan
IPR/TR- 134 /2007
3. Study of AC Susceptibility in Commercial Grade MgB₂ Tape
Pramoda K. Nayak, U. Prasad, A. N. Sharma, S. Kedia, D. Patel, Y. Khristi, V. Amin,
V. Bhavsar and S. Pradhan
IPR/TR- 136/2007
4. Design and Fabrication of a High temperature Furnace with maximum temperature of 900^o C
Pramoda K. Nayak, U. Prasad, D. Patel and S. Pradhan
IPR/TR- 141/2007

16. Any other Information (maximum 500 words)

Post Doc Guidance: 03 completed, 01 ongoing

Ph.D. Guidance:01 completed, 07 ongoing,

Master Guidance: 08 completed, 01 ongoing

Journal reviewer: Nano Letters, ACS Nano, 2D Materials, Carbon, Nanoscale, ACS Applied Materials and Interface, Journal of Physics Condensed Matter, Nanotechnology

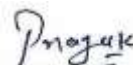
Total Publications: Journals (66), Conference (45), Patents (03), Books (05), Book Chapter (06),

Res. Rep. (08)

Place: Jain University, Bangalore

Date: 24-04-2024

Pramoda Kumar Nayak



Signature of Investigator