

Resume of Chandrabhas Narayana FRSC FNASc FASc

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Date of Birth: 08 September 1965,
Citizenship: Indian

Place of Birth: Bangalore, India
Residence: Indian

Educational Qualification

Ph.D.	Experimental Condensed Matter Physics	1995	Indian Institute of Science, Bangalore
M.Sc. Ed	Physics, Education	1988/Distinction (1 st Rank)	Regional College of Education, Mysore, Mysore University
B.Sc.Ed	Physics, Chemistry, Mathematics, Science Methodology, Psychology, Philosophy, Sociology	1986/Distinction (2 nd Rank)	Regional College of Education, Mysore, Mysore University

Work Experience

Professor	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	12 May 2011 to till date	14 years and 5 months
Director	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	06 November 2020 to 30 September 2025	~ 4 years and 11 months
Associate Professor	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	12 May 2005	6 years
Assistant Professor	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	14 Sep. 1998	6 years and 6 months
Post Doctoral Fellow	Materials Science and Engineering Department, Cornell University, USA	23 Oct. 1995	2 years and 10 months
Project Assistant	Indian Institute of Science, Bangalore	1 Apr. 1995	6 months

Project Assistant	Indian Institute of Science, Bangalore	1 Dec. 1988	8 months
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Visiting Position(s)

Visiting Scientist	Department of Materials Science and Engineering, Cornell University, USA	2001, 2003, 2005, 2007
Invited Professor	IMPMC, University of Pierre and Marie Curie, Paris, France	2008, 2009, 2011, 2013, 2014, 2015, 2016

Membership(s)

Life Member	Indian Crystallographic Association	2025
Life Member	Indian Photobiology Society	2024
Life Member	Chemical Research Society of India	2022
Life Member	Indian Biophysical Society	2016
Member	Royal Society of Chemistry, UK	2013
Life Member	Society of Biological Chemists, India	2012
Member	American Chemical Society, USA	2005
Life Member	Materials Research Society of India	1999

Awards and Fellowships

2024	CRS Gold Medal Award of the Chirantan Rasayan Sanstha®, West Bengal.
2024	Dr. APJ Abdul Kalam National Award of the APJ Abdul Kalam Study Centre, Thiruvananthapuram.
2023	Sir C. V. Raman Memorial Award Lecture of the Indian Photobiology Society
2023	Dr. Taranath Shetty Memorial Oration Award Popular Lecture Series of the Association of Clinical Biochemists of India
2023	Honorary Fellowship of the Kerala Academy of Sciences.
2023	Raja Ramanna Award by the Indian Society of Analytical Scientists (ISAS)
2022	Honorary Fellowship of the Indian Society of Analytical Scientists (ISAS)
2020	Platinum Jubilee Lecture Award of the Indian Science Congress
2018	Mizushima Raman Lecture Award
2018	Fellow of the Indian Academy of Sciences
2017	Fellow of the Royal Society of Chemistry
2017	MRSI-ICSC Superconductivity & Materials Science Senior Award
2016	Sheikh Saqr RAK-CAM Senior Fellow
2012	Fellow of the National Academy of Sciences, India
2009	Prof. C.N.R. Rao Oration Award
2008	Sir C.V. Raman Young Scientist Award (Karnataka Government)
2007	Bronze Medal, Materials Research Society of India
1991	Senior Research Fellowship – UGC
1989	Junior Research Fellowship – UGC

Leadership Positions

Director	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	06 November 2020 to 30 September 2025
Member	Technical Program Committee for Advanced Research Grant – Physical Sciences (Condensed Matter Physics and Materials Science) of Anusandhan National Research Foundation.	July 2025 – July 2028
Member	Council, National Academy of Sciences, India	January 2025 – December 2026
Chairman	National Committee for the Union of International Science Council (ISC) of the International Union of Crystallography (IUCr)	January 2024 – December 2027
Member	National Committee for the Union of International Science Council (ISC) of the International Union of Crystallography (IUCr)	January 2020 – December 2023
Treasurer	Material Research Society of India	December 2019 – December 2026
Dean, Research and Development	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	May 2019 – October 2020
Chairman	Chemistry and Physics of Materials Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	Dec. 2015 – May 2019
Dean, Fellowship and Extension Programmes	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	Oct. 2007 – Sep. 2010
Founding Coordinator	School of Advanced Materials (SAMat), Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	2018 – 2020
Coordinator	India-German PETRA III Project (India@DESY) under the Department of Science and Technology (DST), Government of India (GoI).	2015 – 2020

Coordinator	India-Japan Indian Beamline at Photon Factory, KEK, Tsukuba, Japan	2015 – 2020
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Translational Research (Patents)

Mirror adapted in the microscope to perform SERS, a microscope, and methods thereof.	Chandrabhas Narayana and G.V. Pavan Kumar	US Patent Number 8,179,525 B2 in 2012 and Indian Patent Office No. 260215.
A high-sensitivity assay for molecular typing of the biological sample, probes, and a kit thereof.	Ranga Udaykumar, Chandrabhas Narayana, and N. Jayasuryan	An Indian Patent Office number 295700 in 2018, the Republic of South Africa - Patent Number 2009/03128 in 2009, US Patent Number 8,227,590 B2 in 2012, and European Patent Office No. 07866744.1
Nanoparticle Composition and Process thereof.	Chandrabhas Narayana	PCT/IN2008/000771 in 2008, and US patent No. 12/739,395 in 2010.

Professional Contributions/Roles

Research

Editorial Advisory Board Member	Journal of Applied Physics (AIP Publishers)	2019 – to date
Editorial Board Member	High-Pressure Research (Taylor and Francis Publishers)	2015 - to date
Editorial Board Member	Journal of Biomaterials and Nanobiotechnology	2010 - to date

Education

Member	Council of the National Academy of Sciences, India, Prayagraj	January 2025 – December 2026
Member	Executive Council of the Indian Photobiology Society	January 2025 – December 2026
Member	Academic Council of REVA University	2024 – to date
Member	Research and Development Advisory Board of the REVA University	July 2023 – June 2025
Member	Governing Council of the Institute of Advanced Virology, Thiruvananthapuram	2021 – to date
Member	Governing Body, Cochin Cancer Research Center, Kochi	2021 – to date
Member	Governing Body, Malabar Cancer Centre, Thalassery	2021 – to date

Member	Scientific Advisory Board, Reva University	2023 – to date
Member	Corporate Advisory Board, Reva University	2020 - 2022
Member	Board of Studies, Department of Chemistry, St. Joseph's College of Arts and Science	2020 – 2023
Member	Board of Studies, Department of Physics, Reva University	2024 – to date 2018 – 2020
Member	Governing Body, Government Science College, Bengaluru (Autonomous)	2016 – 2019
Member	Board of Studies, Department of Chemistry, Christ University, Bangalore	2016 – 2019
Member	Board of Studies, Department of Physics, M.S. Ramaiah Institute of Technology, Bangalore	2014 – 2020
Member	Board of Studies, Department of Nanoscience and Technology, University of Calicut	2009 - 2012

Publications

1. Sarwar Hossain, Rabindranath Lo, Chandrabhas Narayana, Stepan Kment, Michal Otyepka, Hemanth Noothalapati, Radek Zbořil, Kolleyboina Jayaramulu, Thiol-functionalized MOFs for precision drug delivery: Raman hyperspectral imaging and density functional theory analysis into antifungal therapy, *Applied Materials Today* 47, 102992 (2025).
2. Aastha, Rabindranath Lo, Swathi Ippili, Saandra Sharma, Abhirami Ajith, Matt Trau, Stepan Kment, **Chandrabhas Narayana**, Soumik Siddhanta, Kolleboyina Jayaramulu, Post-Synthetic Functionalization of Covalent Organic Frameworks for Highly Sensitive and Selective Detection of Plasticisers, *Chemistry–An Asian Journal* 20, e00789 (2025).
3. Anita Gemmy Francis, Janaky Sunil, Anjana Joseph, Anustoop Das, Bobby Joseph, KA Irshad, Kanishka Biswas, Swapan K Pati, **Chandrabhas Narayana**, Evolution of topological phases of TaS₃ under hydrostatic pressure *Physical Review B* 112, 085115 (2025).
4. Arianna Bonizzi, Lorena Signati, Maria Grimaldi, Marta Truffi, Francesca Piccotti, Stella Gagliardi, Giulia Dotti, Serena Mazzucchelli, Sara Albasini, Roberta Cazzola, Debanjan Bhowmik, **Chandrabhas Narayana**, Fabio Corsi, and Carlo Morasso, *Biosensors and Bioelectronics* 278, 117287 (2025).
5. Manali Rathee, Harikrishnan K. Surendran, Aditya Thakur, **Chandrabhas Narayana**, Rabindranath Lo, Anurag Misra, and Kolleboyina Jayaramulu, Tailoring Functional Graphene-Derived Geopolymer Nanocomposites: Interfacial Interactions and Mechanical Strength Enhancement, *ACS Materials Au* 5, 698 (2025).
6. Riddhimoy Pathak, Anjana Joseph, Prabir Dutta, Bobby Joseph, Jyoti Duhan, Sushmita Chandra, **Chandrabhas Narayana**, Koushik Pal, and Kanishka Biswas, Impact of Pressure on Metavalent Bonding in BiTe Influencing Electronic Topological Transitions, *Angewandte Chemie* 137, e202422652 (2025).
7. V Amrutha, Kanakangi S Nair, **Chandrabhas Narayana**, and Harish C Barshilia, Fabrication and performance evaluation of a highly stable micro/nanostructured surface

- using rapid thermal treatment of Si-coated stainless steel for solar thermal applications, *Journal of Alloys and Compounds* 1010, 178093 (2025).
8. Vikas Yadav, Naveen Kumar Arkoti, Shivam Kumar Gautam, Suresh Kuppireddy, Taraka Prabhu Yendrapati, Sudhakar Modem, **Chandrabhas Narayana**, Hideok Lee, Soumik Siddhanta, Kolleboyina Jayaramulu, Recent Advances in Nanoporous NO_x Gas Sensors: Synergising Raman Spectroscopy, IoT, and Machine Learning for High-Performance Detection, *Nanoscale* 17, 20704 (2025).
 9. Ajana Dutta, Diptikanta Swain, Digamber G. Porob, Janaky Sunil, **Chandrabhas Narayana**, and Tayur N Guru Row, Phase Transitions in a Vanthoffite-Type Compound, Na₆Zn(SO₄)₄: Insights from In Situ PXRD and Raman Spectroscopy, *The Journal of Physical Chemistry A* 128, 10587-10597 (2024).
 10. Ajinkya Anjekar, Nidhi Prahlad Rao, Rajapandian Paneerselvam, Kolleboyina Jayaramulu, **Chandrabhas Narayana**, Tatsuyuki Yamamoto, and Hemanth Noothalapati, Deep Learning in Biomedical Applications of Raman Spectroscopy, *Biomedical Imaging: Advances in Artificial Intelligence and Machine Learning*, edited by Ankur Gogoi and Nirmal Mazumder, published by Springer Nature Singapore, Chapter 9, pages 209-247 (2024).
 11. K. R. Pradeep, Priyanka Jain, K. T. Suhas, Vadim Murzin, **Chandrabhas Narayana**, and Ranjani Viswanatha, Structure of Mixed Halide Perovskite Nanocrystals at Various Length Scales. *The Journal of Physical Chemistry C* 128 (39), 16781(2024).
 12. Akashdeep Sharma, Hyeon-Seung Lee, Chae-Min Yeom, Harikrishnan K. Surendran, **Chandrabhas Narayana**, Sunil Babu Eadi, Radek Zboril, Hi-Deok Lee, and Kolleboyina Jayaramulu, Tailoring Conductive MXene@MOF Interfaces: New Generation of Synapse Devices for Neuromorphic Computing *Chemistry of Materials* 36, 8466 (2024).
 13. Manali Rathee, Harikrishnan K. Surendran, **Chandrabhas Narayana**, Rabindranath Lo, Anurag Misra, and Kolleboyina Jayaramulu, Interfacial Chemistry of Ti₃C₂T_x MXene in Aluminosilicate Geopolymers for Enhanced Mechanical Strength, *ACS Applied Engineering Materials* 2, 2027 (2024).
 14. Bidyut Mallick, Mainak Palit, Rajkumar Jana, Soumik Das, Anudeepa Ghosh, Janaky Sunil, Sujana Maity, Bikash Das, Tanima Kundu, **Chandrabhas Narayana**, Ayan Datta, and Subhadeep Datta, Pressure-induced insulator-to-metal transition in few-layer FePS₃ at 1.5 GPa *Phys. Rev. B* 109, 235417 (2024).
 15. Bidesh Biswas, Sourav Rudra, Rahul Singh Rawat, Nidhi Pandey, Shashidhara Acharya, Anjana Joseph, Ashalatha Indiradevi Kamalasanan Pillai, Manisha Bansal, Muireann de h-Óra, Debendra Prasad Panda, Arka Bikash Dey, Florian Bertram, **Chandrabhas Narayana**, Judith MacManus-Driscoll, Tuhin Maity, Magnus Garbrecht, and Bivas Saha, Magnetic Stress-Driven Metal-Insulator Transition in Strongly Correlated Antiferromagnetic CrN *Phys. Rev. Lett.* 131, 126302 (2023).
 16. V Rajaji, Raagya Arora, B Joseph, Subhajit Roychowdhury, Umesh V Waghmare, Kanishka Biswas, and **Chandrabhas Narayana**, Pressure-induced topological crystalline insulating phase in TiBiSe₂: Experiments and theory *Physical Review B* 107, 205139 (2023).
 17. Priyanka Jain, Gayatri Kumari, Meha Bhogra, Premakumar Yanda, Bobby Joseph, Umesh V Waghmare, and **Chandrabhas Narayana**, Raman Evidence of Multiple Adsorption Sites and Structural Transformation in ZIF-4 *Inorganic Chemistry* 62, 7703 (2023).

18. Debanjan Bhowmik, **Chandrabhas Narayana**, Far-Field Spectroscopy and Surface-Enhanced Raman Spectroscopy (SERS) Chapter 5, Nanoscience and Nanospectroscopy, Publisher CRC Press, 97 (2023)
19. Janaky Sunil, **Chandrabhas Narayana**, Gayatri Kumari, and Kolleboyina Jayaramulu, Raman spectroscopy, an ideal tool for studying the physical properties and applications of metal-organic frameworks (MOFs), Chemical Society Reviews 52, 3397 (2023).
20. Sushmita Chandra, Janaky Sunil, Prabir Dutta, Koushik Pal, Manisha Samanta, Bobby Joseph, **Chandrabhas Narayana**, and Kanishka Biswas, Evidence of pressure-induced multiple electronic topological transitions in BiSe Materials Today Physics 30, 100956 (2023).
21. Divya Chalapathi, Amrendra Kumar, Pratik Behera, Shijulal Nelson Sathi, Rajaram Swaminathan, and **Chandrabhas Narayana**, Insights on Aggregation of Hen Egg-White Lysozyme from Raman Spectroscopy and MD Simulations, Molecules 27, 7122 (2022).
22. V. Rajaji, F. J. Manjón, **Chandrabhas Narayana**, Pressure-induced topological and topological crystalline insulators J. Phys.: Condens. Matter 34, 423001 (2022).
23. K. Kamali, S. Prasad, M. K. Sahoo, J. N. Behera, U. V. Waghmare, **Chandrabhas Narayana**, Unusual CO₂ Adsorption in ZIF-7: Insight from Raman Spectroscopy and Computational Studies Inorganic Chemistry 61, 11571 (2022).
24. Bhawana Mali, Janaky Sunil, Harikrishnan S. Nair, **Chandrabhas Narayana**, and Suja Elizabeth Spin reorientation to a $\Gamma_3(C_x, F_y, A_z)$ configuration and anisotropic spin-phonon coupling in a Sm_{0.5}Y_{0.5}FeO₃ single crystal Phys. Rev. B 105, 214417 (2022).
25. K. Kamali, B. Joseph, **Chandrabhas Narayana**, Stability of zeolitic imidazolate frameworks (ZIF-7) under high pressures and its implications on storage applications of ZIFs Journal of Solid State Chemistry 309, 122973 (2022).
26. D. Bose, S. Aggarwal, D. Das, **Chandrabhas Narayana**, A. Chakrabarti, Erythroid spectrin binding modulates peroxidase and catalase activity of heme proteins IUBMB life 74 (5), 474 (2022).
27. V. Bonu, G. Srinivas, V. P. Kumar, A. Joseph, **Chandrabhas Narayana**, H. C. Barshilia, Temperature-dependent erosion and Raman analyses of arc-deposited H-free thick DLC coating on Cr/CrN coated plasma nitrided steel. Surface and Coatings Technology 436, 128308 (2022).
28. Bidesh Biswas, Sourjyadeep Chakraborty, Anjana Joseph, Shashidhara Acharya, Ashalatha Indiradevi Kamalasanan Pillai, **Chandrabhas Narayana**, Vijay Bhatia, Magnus Garbrecht, Bivas Saha, Secondary phase limited metal-insulator phase transition in chromium nitride thin films, Acta Materialia 227, 117737 (2022).
29. Pavitra N Shanbhag, Anjana Joseph, Fabio Orlandi, Pascal Manuel, R. Mahendiran, Francois Fauth, **Chandrabhas Narayana**, A Sundaresan, CNR Rao Effects of Ga doping on the phase transitions of V₂O₃ Physical Review B 105, 064103 (2022).
30. Priyanka Jain, Madhulika Mazumder, K. R. Pradeep, Ranjani Viswanatha, Swapan K. Pati, and **Chandrabhas Narayana**, Polaronic Signatures in Doped and Undoped Cesium Lead Halide Perovskite Nanocrystals through a Photoinduced Raman Mode, ACS Applied Materials and Interfaces 14, 5567 (2022).
31. M B Shoker, T Alhaddad, V J B Torres, A V Postnikov, A Polian, R Hajj Hussein, G K Pradhan, **Chandrabhas Narayana**, C Gardienet, G Kervern, L Nataf, S Ravy, J-P Itié, K Strzałkowski, A Marasek, and F Firszt, Exceptional phonon point versus free phonon

- coupling in $\text{Zn}_{1-x}\text{Be}_x\text{Te}$ under pressure: an experimental and ab initio Raman study, *Scientific Reports* 12, 1 (2022).
32. S Sen, D Chalapathi, J Targolli, **Chandrabhas Narayana**, SERS combined with PCR as a potent tool for detecting mutations: a case study of tomato plants, *RSC Advances* 12, 35929 (2022).
 33. Divya Bhutani, Sisir Maity, Shashank Chaturvedi, Divya Chalapathi, Umesh V Waghmare, **Chandrabhas Narayana**, Vinod C Prabhakaran, Eswaramoorthy Muthusamy Heterostructure from hetero mixture: unusual OER activity of FeP and CoP nanostructures on physical mixing *Journal of Materials Chemistry A* 10, 22354 (2022).
 34. Swagatha Ghosh, Sayan Mondal, Keerti Yadav, Shantanu Aggarwal, Wayne F Schaefer, **Chandrabhas Narayana**, Ramaswamy Subramanian. Modulation of biliverdin dynamics and spectral properties by Sandercyanin *RSC advances* 12, 20296 (2022).
 35. Bhaskar Kakoty, Rishikesh Vengarathody, Srimayee Mukherji, Vinita Ahuja, Anjana Joseph, **Chandrabhas Narayana**, Sundaram Balasubramanian, Premkumar Senguttuvan, Two for one: propylene carbonate co-solvent for high-performance aqueous zinc-ion batteries—remedies for persistent issues at both electrodes *Journal of Materials Chemistry A* 10, 12597 (2022).
 36. Soumyabrata Roy, Debabrata Bagchi, Lakshay Dheer, Saurav Ch Sarma, Vincent Rajaji, **Chandrabhas Narayana**, Umesh V Waghmare, Sebastian C Peter, Mechanistic insights into the promotional effect of Ni substitution in non-noble metal carbides for highly enhanced water splitting, *Applied Catalysis B: Environmental* 298, 120560 (2021).
 37. Venkata S Bhadram, Abhijit Sen, Janaky Sunil, Debendra Prasad Panda, Athinarayanan Sundaresan, **Chandrabhas Narayana**, Pressure-driven evolution of structural distortions in RCrO_3 perovskites: The curious case of LaCrO_3 *Solid State Sciences* 119, 106708 (2021).
 38. K Kamali, B Joseph, V Rajaji, **Chandrabhas Narayana**, Pressure-Induced Loss of Long-Range Structural Order in MFM-300 (Al): An X-ray Diffraction and Raman Spectroscopic Study, *Journal of Physical Chemistry C* 125, 15472-15478 (2021).
 39. Supti Das, Dhanya Radhakrishnan, Venkata S Bhadram, **Chandrabhas Narayana**, Aninda J Bhattacharyya, Brillouin light scattering study of microscopic structure and dynamics in pyrrolidinium salt-based ionic liquids, *Solid State Ionics* 363, 115603 (2021).
 40. Subarna Das, P Singha, VA Kulbachinskii, VG Kytin, Gangadhar Das, S Janaky, AK Deb, Sudip Mukherjee, A Maignan, S Hebert, R Daou, **Chandrabhas Narayana**, S Bandyopadhyay, Aritra Banerjee, Sb_2Te_3 /graphite nanocomposite: A comprehensive study of thermal conductivity *Journal of Materiomics* 7, 545 (2021).
 41. Shantanu Aggarwal, Sayan Mondal, Soumik Siddhanta, Engleng Bharat, Easa Nagamalleswari, Valakunja Nagaraja, **Chandrabhas Narayana**, Divalent Ion-Induced Switch in DNA Cleavage of KpnI Endonuclease Probed through Surface-Enhanced Raman Spectroscopy *Journal of Physical Chemistry B* 125, 2241-2250 (2021).
 42. Meenakshi Pahwa, Priyanka Jain, Nilanjana Das Saha, **Chandrabhas Narayana**, Sarit S Agasti, Interfacial tetrazine click chemistry mediated assembly of multifunctional colloidosomes, *Chemical Communications* 57, 9534 (2021).
 43. Kolleboyina Jayaramulu, Marilyn Esclance DMello, Kamali Kesavan, Andreas Schneemann, Michal Otyepka, Stepan Kment, **Chandrabhas Narayana**, Suresh Babu Kalidindi, Rajender S Varma, Radek Zboril, Roland A. Fischer, A multifunctional covalently linked graphene–MOF hybrid as an effective chemiresistive gas sensor *Journal of Materials Chemistry A* 9, 17434 (2021).

44. Le Fang, Chen Chen, A. Sundaresan, **Chandrabhas Narayana**, Nikita Ter-Oganessian, A. P. Pyatakov, Shixun Cao, Jincang Zhang, Wei Ren, The CdTiO₃/BaTiO₃ superlattice interface from first principles, *Nanoscale* 13, 8506 (2021).
45. Amit Mallik, I Roy, D. Chalapathi, **Chandrabhas Narayana**, T. D. Das, A. Bhattacharya, S. Bera, S. Bhattacharya, Sriparna De, B. Das, D. Chattopadhyay, Single-step synthesis of reduced graphene oxide/SnO₂ nanocomposites for potential optical and semiconductor applications, *Materials Science and Engineering: B* 264, 114938 (2021).
46. Kolleboyina Jayaramulu, Michael Horn, Andreas Schneemann, Haneesh Saini, Aristides Bakandritsos, Vaclav Ranc, Martin Petr, Vitalie Stavila, **Chandrabhas Narayana**, Błażej Scheibe, Štěpán Kment, Michal Otyepka, Nunzio Motta, Deepak Dubal, Radek Zbořil, Roland A. Fischer, Covalent Graphene-MOF Hybrids for High-Performance Asymmetric Supercapacitors, *Advanced Materials* 33, 2004560 (2021).
47. MB Shoker, Olivier Pagès, VJB Torres, Alain Polian, J-P Itié, G. K. Pradhan, **Chandrabhas Narayana**, M. N. Rao, R. Rao, C. Gardiennet, G. Kervern, K. Strzałkowski, F. Firszt, Phonon-based partition of (ZnSe-like) semiconductor mixed crystals on approach to their pressure-induced structural transition, *Scientific Reports* 10, 1-11 (2020).
48. Divya Chalapathi, Sreedevi Padmanabhan, Ravi Manjithaya, **Chandrabhas Narayana**, Surface-enhanced Raman spectroscopy as a tool for distinguishing extracellular vesicles under autophagic conditions: a marker for disease diagnostics *Journal of Physical Chemistry B* 124, 10952-10960 (2020).
49. Christophe Bellin, Amit Pawbake, Lorenzo Paulatto, Keevin Béneut, Johan Biscaras, **Chandrabhas Narayana**, Alain Polian, Dattatray J Late, Abhay Shukla, Functional Monochalcogenides: Raman Evidence Linking Properties, Structure, and Metavalent Bonding *Physical Review Letters* 125, 145301 (2020).
50. Achintya Bera, Anjali Singh, YA Sorb, Ramesh Naidu Jenjeti, DVS Muthu, S Sampath, **Chandrabhas Narayana**, UV Waghmare, AK Sood, Chemical ordering and pressure-induced isostructural and electronic transitions in MoSSe crystal *Physical Review B* 102, 014103 (2020).
51. Venkataramana Bonu, V Praveen Kumar, **Chandrabhas Narayana**, Harish C Barshilia, Role of bonding nature on the temperature-dependent erosion behaviour of solid materials: A detailed high-temperature Raman spectroscopic analysis, *Journal of Applied Physics* 128, 015104 (2020).
52. Soumyabrata Roy, Debabrata Bagchi, Vamseedhara Vemuri, Saurav Ch Sarma, Vinita Ahuja, Vincent Rajaji, **Chandrabhas Narayana**, Sebastian C Peter, Deconvolution of phase-size-strain effects in metal carbide nanocrystals for enhanced hydrogen evolution, *Nanoscale* 12, 15414-15425 (2020).
53. Diptikanta Swain, Gopal K. Pradhan, and **Chandrabhas Narayana**, Understanding the Mechanism of Ferroelectric Phase Transition in RbHSO₄: A High-Pressure Raman Investigation, *Inorganic Chemistry* 59 (12), 7960-7965 (2020).
54. Ajana Dutta, Diptikanta Swain, Janaky Sunil, **Chandrabhas Narayana**, and Tayur N. Guru Row, Minerals to Functional Materials: Characterisation of Structural Phase Transitions and Raman Analysis of a Superionic Phase in Na₆Co(SO₄)₄, *Inorganic Chemistry* 59, 8424-8431 (2020).
55. Pradeep K. R., Debdipto Acharya, Priyanka Jain, Kushagra Gahlot, Anur Yadav, Andrea Camellini, Margherita Zavelani-Rossi, Giulio Cerullo, **Chandrabhas Narayana**, Shobhana

- Narasimhan, and Ranjani Viswanatha, Harvesting Delayed Fluorescence in Perovskite Nanocrystals Using Spin-Forbidden Mn d States, *ACS Energy Letters* 5, 353 - 359 (2019).
56. Divya Chalapathi, Priyanka Jain, and **Chandrabhas Narayana**, Phase Transitions in Materials, *Advances In The Chemistry And Physics Of Materials: Overview Of Selected Topics* 249 - 274 (2019).
 57. Sayan Mondal and **Chandrabhas Narayana**, Role of Explicit Solvation in the Simulation of Resonance Raman Spectra within Short-Time Dynamics Approximation, *Journal of Physical Chemistry B* 123, 8800 – 8813 (2019).
 58. B. Vishal, H. Sharona, U. Bhat, A. Paul, M.B. Sreedhara, V. Rajaji, S.C. Sarma, **Chandrabhas Narayana**, Sebastian C. Peter, and Ranjan Datta, Growth of ReS₂ thin films by pulsed laser deposition, *Thin Solid Films* 685, 81 – 87 (2019).
 59. M Kanagaraj, Amit Pawbake, Saurav Ch Sarma, V Rajaji, **Chandrabhas Narayana**, Marie-Aude Measson, and Sebastian C Peter, Structural, magnetotransport, and Hall coefficient studies in ternary Bi₂Te₂Se, Sb₂Te₂Se and Bi₂Te₂S tetradymite topological insulating compounds, *Journal of Alloys and Compounds* 794, 195 – 202 (2019).
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 61. V Rajaji, S Janaky, Saurav Ch. Sarma, Sebastian C Peter, and **Chandrabhas Narayana**, Pressure-induced topological and structural phase transitions in 1T-TiSe₂: a Raman study, *Journal of Physics: Condensed Matter* 31, 65401 (2019).
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 63. Deepak P. Dubal, Kolleboyina Jayaramulu, Janaky Sunil, Stepan Kment, Pedro Gomez-Romero, **Chandrabhas Narayana**, Radek Zboril, and Roland A. Fischer, Metal-Organic Framework (MOF) Derived Electrodes with Robust and Fast Lithium Storage for Li-Ion Hybrid Capacitors, *Advanced Functional Materials* 29, 190053 (2019).
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