CHANDRASEKHAR MURAPAKA

PERSONAL DETAILS

Chandrasekhar Murapaka
Associate Professor
Department of Materials Science and Metallurgical Engineering
Indian Institute of Technology Hyderabad

RESEARCH INTRESTS

Spintronic based memory and logic devices, Skyrmion dynamics, Micromagnetic simulations, Spin-orbit torques, Spin-pumping, Spin Hall effect, Organic spintronics, Heusler alloys, THz spintronics, Neuromorphic devices

PROFESSIONAL EXPERIENCE

- **Associate Professor (**Aug 2023 – Present**) Indian Institute of Technology, Hyderabad**
- **Assistant Professor (**July 2018 – July 2023**) Indian Institute of Technology, Hyderabad**
- **Research Fellow (**Mar 2018 – July 2018**) Nanyang Technological University, Singapore**
- **Research Engineer (**Feb 2016 –Feb 2018**) Spintec, CEA Grenoble, France**
- **Senior Engineer, Technology Development (**May 2015 – Feb 2016**) Globalfoundries, Singapore**
- **Research Associate (**Feb 2014 –May 2015**) Nanyang Technological University, Singapore**
- **Project Associate (**May 2009 – Oct 2009**) Indian Institute of Technology, Delhi**

EDUCATION

- **Ph. D.** Nanyang Technological University, Singapore, 2014
- **M. Tech. (Solid State Materials)** Indian Institute of Technology Delhi, 2009
- **M. Sc. (Physics)** Andhra University Visakhapatnam, 2006

AWARDS/FELLOWSHIPS

- IEEE Senior Member from 2025
- Teaching Excellence Award from IIT Hyderabad 2024
- Visiting faculty to NIMS Japan through IITH-NIMS collaboration 2022, 2023 and 2024
- Visiting faculty to NTU Singapore 2023
- Received Gold medal for Best PhD thesis in Physics from Materials Research Society Singapore 2015
- Best presenter award in the IEEE Magnetics Symposium Singapore chapter 2013
- IEEE student travel award to participate in Intermag conference 2012 held at Vancouver, Canada
- IEEE Magnetics Society grant to attend IEEE Magnetics Summer School 2012
- Nominated from NTU to participate in Global Young Scientist Summit GYSS@ one north in 2015
- Secured all India 48 rank in Graduate Aptitude Test in Engineering (GATE 2007)
- DST- INSPIRE faculty award (2017)
- Recognized reviewer – JALCOM (2022 & 2023), JMMM (2015) and MRB (2014)
- Enhanced Eurotalents fellowship to conduct Postdoctoral Research at Spintec, France 2016 – 2018
- NTU Research Scholarship for pursuing Ph. D. 2010 – 2014

RESEARCH OUTPUT

- International Journals : **73**
- International Patents : **4 granted (3 US patents + 1 Singapore patent)**
- National Patents : **8** (**3 Indian patents granted + 5 Filed**)
- Book chapter contribution : **3**

STUDENT SUPERVISION

Ph. D. : 3 Graduated

Masters : 8 Graduated

TEACHING

Physics of Solids, Magnetic Materials, Functional Properties of Materials, Thin films, Si IC fabrication (wafer to chip), IC packaging materials, Thin film technology, Functional property characterization lab, Spintronic Materials and devices, Semiconductor devices, Micro and Nanofabrication.

SPONSERED PROJECTS

Funding received ~ INR 50 million

- Agency: Early Career Research Award, SERB, DST, India – Completed

Title: Spin-orbit torque induced magnetization dynamics in perpendicular magnetic anisotropy materials for non-volatile memory and logic applications (PI)
Duration: 3 years, Total budget: ~ Rs. 49.96 lakh

- Agency: Regular Research Project BRNS, DAE, India – On-going

Title: Harnessing pure spin current by tailoring molecular spinterface (PI)
Duration: 3 years, Total budget: ~ Rs. 30.03 lakh

- Agency: Core Research Grant CRG, SERB, DST, India - On-going

Title: Ferrimagnet based synaptic device for neuromorphic computing (PI)
Duration: 3 years, Total budget: ~ Rs. 64.83 lakh

- Agency: JICA, Japan Friendship 2.0 - On-going

Title: Novel spin Hall materials for spin-orbit torque based memory and logic devices (PI)
Duration: 2 years, Total budget: ~ Rs. 22 lakh

- Agency: IIT Hyderabad Seed grant – Completed

Title: Fabrication of compositionally and geometrically modulated cylindrical ferromagnetic nanowires for magnetic nanobarcode applications (PI)
Duration: 2 years Total budget: ~ Rs. 3 lakh

- Agency: Scheme for Promotion of Academic and Research Collaboration (SPARC) - Completed

Title: Tuning the magnetic properties of nanocrystalline multi-component alloy thin film coatings through a single step electrodeposition for sensor applications (Co-PI)
Duration: 2 years Total budget: ~ Rs. 50 lakh

- Agency: Indo-Sweden DST-VR Joint Call – Completed

Title: Microstructural evolution and structure-property correlations in FeCoNi based multi component alloy thin films (Co-PI)
Duration: 3 years Total budget: ~ Rs. 60 lakh

- Agency: Core Research Grant CRG, SERB, DST, India - On-going

Title: Spintronics based Digital Logic Architecture Design for AI Applications (Co-PI)
Duration: 3 years, Total budget: ~ Rs. 59.99 lakh

- Agency: MOE-STARS – On-going

Title: Ultrafast Terahertz Super-Spintronics (Co-PI)
Duration: 3 years, Total budget: ~ Rs. 99.8 lakh

- Agency: DRDO – ER-IPR On-going

Title: Exploring quantum materials from first principles for Spintronic applications (Co-PI)
Duration: 3 years, Total budget: ~ Rs. 79.8 lakh

List of Publications in peer reviewed journals

1. K. Sahoo, M. Talluri, D. Maity, S. Mundlia, A. Lal, M. S. Devapriya, A. Haldar, Chandrasekhar Murapaka*, T N Narayanan, "Vanadium Doped Magnetic MoS2 Monolayers of Improved Electrical Conductivity as Spin-Orbit Torque Layer" Advanced Functional Materials 2502408 (2025).
2. Aszad Alam, G. Phukan, Chandrasekhar Murapaka, J.P. Borah, Aimin Yu, Mudrika Khandelwal, "Governing the Magnetic Hyperthermia Performance through Assembly Effect in Superparamagnetic Biocomposites: Dispersed Chains and Clustered Assemblies Immobilized on the Bacterial Nanocellulose Fibers" Journal of Magnetism and Magnetic Materials (In Press 2025).
3. R. Mondal, V. Alman, A. Haldar, Chandrasekhar Murapaka*, "*Impact of Cr spacer layer on spin transport properties in Co2FeAl/Ta system*", Journal of Superconductivity and Novel Magnetism, 38:76 (2025).
4. B Panigrahi, MM Raja, Chandrasekhar Murapaka, A Haldar, "*Spin-to-charge conversion via dual-mode ferromagnetic resonance in Ta/NiFe/FeMn/CoFeB multilayer*", Journal of Magnetism and Magnetic Materials 608, 172420 (2024).
5. V Haragopal, R Jaiswal, Chandrasekhar Murapaka*, V Kannan, "*Field-Induced Multistate Magnetization Switching in Ferromagnetic Nanowire with Parallel Anti-dots for Memristor Applications*", Journal of Superconductivity and Novel Magnetism, 37, 1793-1800 (2024).
6. K Sriram, YS Pappu, R. Mondal MS Devapriya, J Pradhan, A Haldar, Chandrasekhar Murapaka*, "*Deposition pressure-controlled phase tailoring and stability of β-W for spintronic applications*", Journal of Applied Physics 136, 045302 (2024).
7. Talluri Manoj, Zhenchao Wen, Jun Uzuhashi, Tadakatsu Ohkubo, Hiroaki Sukegawa, Chandrasekhar Murapaka, Brian York, Xiaoyong Liu, Quang Le, Seiji Mitani, "*Spin–Orbit Torque Modulated by Interface Chemistry in Topological BiSb/NiFe Bilayers with Titanium Insertion*", ACS: Applied Electronic Materials 6, 4269 (2024).
8. S Sivasubramani, B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka, A. Acharya, "*Area Efficient Skyrmion Logic based Approximate Adder Architecture Design Methodology*", Transactions on Emerging Topics in Computing (In Press 2024).
9. B Panigrahi, MM Raja, Chandrasekhar Murapaka, A Haldar, "*Dual mode spin to charge conversion using inverse spin Hall effect in NiFe/FeMn/NiFe multilayer thin films*", Journal of Physics D: Applied Physics 57, 305005 (2024).
10. R Mondal, MS Devapriya, J Pradhan, A Haldar, Chandrasekhar Murapaka*, "*Effect of growth rate on structural, magnetic and spin dynamic properties of Co2FeAl thin films*", Thin Solid Films, 140268 (2024).
11. V Haragopal, R Jaiswal, V Kannan, Chandrasekhar Murapaka*, WS Lew, "*Current-Induced Domain Wall NOT Gate Logic Operation via Chirality Flipping by Exploiting Walker Breakdown*"Journal of Superconductivity and Novel Magnetism, 1-7 (2024).

12. S Sara, Chandrasekhar Murapaka, A Haldar, "*Voltage-controlled magnetic anisotropy gradient-driven skyrmion-based half-adder and full-adder*" Nanoscale 16 (4), 1843-1852 (2024).
13. K Sriram, YS Pappu, MS Devapriya, J Pradhan, A Haldar, Chandrasekhar Murapaka*, "*Deposition pressure dependence on spin Hall angle of W thin films grown on NiFe*" SPIN (2023).
14. R. Singh, G. K. Maurya, V. Gautam, R. Kumar, M. Kumar, KG Suresh, B. Panigrahi, Chandrasekhar Murapaka, A. Haldar, P. Kumar, "*Proximity induced band gap opening in topological-magnetic heterostructure (Ni80Fe20/p-TlBiSe2/p-Si) under ambient condition*", Scientific Reports 13 (1), 22290 (2023).
15. J Pradhan, MS Devapriya, R Mondal, T Manoj, Chandrasekhar Murapaka, A Haldar, "*Effect of thermal annealing on the magnetization reversal and spin dynamics in ferrimagnetic TbCo thin films*", Journal of Magnetism and Magnetic Materials 587, 171363 (2023).
16. K Sriram, R Mondal, J Pradhan, A Haldar, Chandrasekhar Murapaka*, "*Structural Phase Engineering of (α+ β)-W for a Large Spin Hall Angle and Spin Diffusion Length"*, The Journal of Physical Chemistry C 127 (46), 22704 (2023).
17. R Gupta, J Pradhan, A Haldar, Chandrasekhar Murapaka*, PC Mondal, "*Chemical Approach Towards Broadband Spintronics on Nanoscale Pyrene Films*", Angewandte Chemie, e202307458 (2023).
18. K Sriram, J Pradhan, M S Devapriya, A Haldar, Chandrasekhar Murapaka*, "*Annealing dependence on magnetization dynamics and two-magnon scattering in Co40Fe40B20 thin films*", Thin Solid Films, 139924 (2023).
19. V. Haragopal, R. Jaiswal, Chandrasekhar Murapaka*, K. V. Nandhini, "*Formation of 360˚ domain wall in a ferromagnetic nanowire by splitting and recombination of 180˚ domain wall*", Proceedings of the National Academy of Sciences, India Section A: Physical Sciences. (2023).
20. B Panigrahi, MM Raja, J Sinha, , Chandrasekhar Murapaka, A Haldar, "*NiFe/FeMn exchange biased systems for bias-field-free magnetization dynamics*", Thin Solid Films, 139923 (2023).
21. Vidya Alman, Anil Annadi, Chandrasekhar Murapaka, Jhantu Pradhan, Arabinda Haldar, Vidyadhar Singh, Murtaza Bohra "*Thickness-Driven Magnetic Behavior in Ni–Cr Nanocrystalline Thin Films: Implications for Spintronics and Magnetic Cooling*", ACS Applied Nano Materials (2023).
22. M S Devapriya, Kartheek Biswas, Chandrasekhar Murapaka, A. Haldar, "*Magnetization Dynamics of Domain Walls in Cylindrical Nanowires*", Proceedings of the National Academy of Sciences, India Section A: Physical Sciences (2023).
23. P. J. Krishnanjana, B Paikaray, Chandrasekhar Murapaka*, A Haldar, "*Giant tunability of microwave responses for current-driven skyrmions in a tapered nanostructure with notches*" Journal of Physics D: Applied Physics 56 (33), 335001 (2023).
24. B Panigrahi, MM Raja, Chandrasekhar Murapaka, A Haldar, "*Bias-Field-Free Microwave Operation in NiFe/FeMn Exchange Biased Bilayers by Varying FeMn Thickness*", Journal of Superconductivity and Novel Magnetism 36 (3), 1075-1083 (2023).
25. B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka*, "*Skyrmion based majority logic gate by*

voltage controlled magnetic anisotropy in a nanomagnetic device", Nanotechnology 34, 225202 (2023).

26. R. Jaiswal, V. Haragopal, Chandrasekhar Murapaka*, K. V. Nandhini, "*Chirality-Dependent Domain Wall Splitting and Recombination in Ferromagnetic Nanostructure with an Anti-dot*", Journal of Superconductivity and Novel Magnetism 36, 665 (2023).
27. S Sivasubramani, B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka, A. Acharya, "*Skyrmion based 3D low complex runtime reconfigurable architecture design methodology of universal logic gate*", Nanotechnology 34, 13LT01 (2023).
28. Talluri Manoj, Hari Prasanth Perumal, Bibekananda Paikaray, Arabinda Haldar, Jaivardhan Sinha, Pinaki Prasad Bhattacharjee, Chandrasekhar Murapaka*, "*Perpendicular magnetic anisotropy in a sputter deposited nanocrystalline high entropy alloy thin film*", Journal of Alloy and Compounds, 167337 (2023).
29. B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka*, "*Reconfigurable logic operations via gate controlled skyrmion motion in a nanomagnetic device*", ACS Applied Electronic Materials 4, 2209 (2022).
30. K. Sriram, Jay Pala, Rohiteswar Mondal, Bibekananda Paikaray, Komal Jain, G.A. Basheed, Arabinda Haldar, Chandrasekhar Murapaka*, "*Effect of annealing on magnetization reversal and spin dynamics in Co40Fe40B20 thin films*", Journal of Superconductivity and Novel Magnetism (2022).
31. B. Paikaray, S. Somesh, T. Manoj, K. Sriram, H. Basumarty, Arabinda Haldar, Chandrasekhar Murapaka*, "*Large spin pumping and inverse spin Hall effect in Ta/Py bilayer structures*", Physica Status Solidi A: Applications and Materials Science 2100608 (2022).
32. Chokkakula L.P. Pavithra, Reddy Kunda Siri Kiran Janardhana, Kolan Madhav Reddy, Chandrasekhar Murapaka, U. Klement and Suhash R. Dey, "*Graphene Oxide Reinforced Magnetic FeCoNiCuZn High Entropy Alloys through Electrodeposition*", The Journal of Electrochemical society 169, 022501 (2022).
33. K. Sriram, Jay Pala, Bibekanada Paikaray, Arabinda Haldar, Chandrasekhar Murapaka*, "*Effect of seed layer on Ta crystalline phase and spin Hall angle*", Nanoscale 13, 19985 (2021).
34. Talluri Manoj, Srinu Kotha, Bibekanda Paikaray, Dasari Srideep, Arabinda Haldar, Kotagiri Venkata Rao, Chandrasekhar Murapaka*, "*Giant Spin Pumping at Ferromagnet (Permalloy) - Organic Semiconductor (Perylene diimide) Interface*", RSC Advances 11, 35567 (2021).
35. A Litvinenko, P Sethi, Chandrasekhar Murapaka, A Jenkins, V Cros, P Bortolotti, R Ferreria, B Dieny, U Ebels, "*Analog and digital phase modulation and signal transmission with spin torque nano-oscillators*" Physical Review Applied, 16 (2), 024048 (2021).
36. A. Kumar, R. Sharma, K. I. Ali Khan, Chandrasekhar Murapaka, G. J. Lim, W. S. Lew, S. Chaudhary, P. K. Muduli, "*Large Damping-like Spin–Orbit Torque and Improved Device Performance Utilizing Mixed-Phase Ta*", ACS Applied Electronic Materials, 3, 3139–3146 (2021).
37. B Paikaray, K. Mahathi, Chandrasekhar Murapaka*, A Haldar, "*Skyrmion Dynamics in Concentric and Eccentric Nano-Ring Structures*", IEEE Transaction on Magnetics 58, 4300406 (2021).
38. B Paikaray, A Joseph, Chandrasekhar Murapaka*, A Haldar, "*Tunable microwave properties of a skyrmion in an isolated nanodisk*" Journal of Magnetism and Magnetic Materials 529, 167900 (2021).
39. Chokkakula L.P. Pavithra, Reddy Kunda Siri Kiran Janardhana, Kolan Madhav Reddy, Chandrasekhar Murapaka, Xiadong Wang and Suhash R. Dey, "*One-dimensional Co–Cu–Fe–Ni–Zn high-entropy alloy*

nanostructures", Materials Research Letters, 9 (7) 285-290 (2021).

40. Chokkakula L. P. Pavithra, Reddy Kunda Siri Kiran Janardhana, Kolan Madhav Reddy, Chandrasekhar Murapaka, Joydip Joardar, Bulusu V. Sarada, Rameez R. Tamboli, Yixuan Hu, Yumeng Zhang, Xiaodong Wang and Suhash Ranjan Dey, "*An advancement in the synthesis of unique soft magnetic CoCuFeNiZn high entropy alloy thin films*" Scientific Reports, 11, 8836 (2021).
41. AK Behera, Chandrasekhar Murapaka, S Mallick, BB Singh, S Bedanta, "*Skyrmion Racetrack memory with an antidot*", Journal of Physics D: Applied Physics 54 (2), 025001 (2020).
42. Gerard Joseph Lim, Weiliang Gan, WC Law, Chandrasekhar Murapaka, WS Lew, "*Spin-orbit torque induced multi-state magnetization switching in Co/Pt hall cross structures at elevated temperatures*", Journal of Magnetism and Magnetic Materials 514, 167201 (2020).
43. Gerard Joseph Lim, Daniel Chua, Weiliang Gan, Chandrasekhar Murapaka and Wen Siang Lew, "*Programmable Spin-Orbit Torque Logic Device with Integrated Bipolar Bias Field for Chirality Control*" Advanced Electronic Materials 6, 1901090 (2020).
44. Q. Y. Wong, Chandrasekhar Murapaka, W. C. Law, W. L. Gan, G. J. Lim and W. S. Lew, "*Enhanced Spin-Orbit Torques in Rare-Earth Pt/[Co/Ni]$_2$/Co/Tb Systems*", Physical Review Applied 11, 024057 (2019).
45. S. Krishnia, Chandrasekhar Murapaka, P. Sethi, G. J. Lim, Q. Y. Wong, W. Gan and W. S. Lew, "*Current-induced spin-orbit effective field modulations in synthetic antiferromagnetic structures*" Journal of Magnetism and Magnetic Materials 475, 327-333 (2019).
46. U Ebels, J Hem, A Purbawati, A Ruiz Calafora, Chandrasekhar Murapaka, L Vila, K Jaimes Merazzo, E Jimenez, M-C Cyrille, R Ferreira, M Kreissig, R Ma, F Ellinger, R Lebrun, S Wittrock, V Cros, P Bortolotti, "*Spintronic based RF components*", Joint Conference of the European Frequency and Time Forum and IEEE International Frequency Control Symposium (EFTF/IFCS) 66-67, (2017).
47. A. Ruiz-Calaforra, A. Purbawati, T. Bracher, J. Hem, Chandrasekhar Murapaka, E. Jimenez-Romero, D. Mauri, A. Zeltser, J. A. Katine, M.-C. Cyrille, L. D. Buda-Prejbeanu, and U. Ebels, "*Frequency shift keying in MTJ based Spin torque nano-oscillator with high bit rates*" Applied Physics Letters 111, 082401 (2017).
48. Chandrasekhar Murapaka, P. Sethi, S. Goolaup and W. S. Lew, "*Reconfigurable logic via gate controlled domain wall trajectory in magnetic network structure*", Scientific Reports 6, 20130 (2016).
49. P. Sethi, Chandrasekhar Murapaka, S.Goolaup, Y. J. Chen, S. H. Leong and W. S. Lew, "*Direct observation of deterministic domain wall trajectory in magnetic network structures*", Scientific Reports 6, 19027 (2016).
50. DW Wong, I Purnama, GJ Lim, WL Gan, Chandrasekhar Murapaka and W. S. Lew, "*Current-induced three-dimensional domain wall propagation in cylindrical NiFe nanowires*", Journal of Applied Physics 119 (15), 153902 (2016).
51. P. Sethi, Chandrasekhar Murapaka, G. J. Lim, and W. S. Lew, "*In-plane current induced domain*

wall nucleation and its stochasticity in perpendicular magnetic anisotropy Hall cross structures", Applied Physics Letters 107, 192401 (2015).

52. Chandrasekhar Murapaka, S. Goolaup, I. Purnama and W. S. Lew, "*Coupled domain wall oscillations in magnetic cylindrical nanowires*", Journal of Applied Physics 117, 053913 (2015).
53. Chandrasekhar Murapaka, M. Tran, L. Wang, G. C. Han and W. S. Lew, "*Increased stability against spin torque noise in current perpendicular to the plane self-biased differential dual spin valves*", Journal of Magnetism and Magnetic Materials 374, 740 (2015).
54. D. W. Wong, Chandrasekhar Murapaka, W. L. Gan, I. Purnama and W. S. Lew, "*Dynamics of three- dimensional helical domain wall in cylindrical NiFe nanowires*", Journal of Applied Physics 117, 17A747 (2015).
55. S. Goolaup, M. Ramu, Chandrasekhar Murapaka and W. S. Lew, "*Transverse domain wall profile for logic applications*", Scientific Reports 5, 9603 (2015).
56. Chandrasekhar Murapaka, P. Sethi, S. Goolaup, M. Ramu, Y. J. Chen, S. H. Leong, and W. S. Lew, "*Direct observation of domain wall evolution at a bifurcation in magnetic network structures*", Applied Physics Express 7, 113003 (2014).
57. Chandrasekhar Murapaka, S. Goolaup, I. Purnama and W. S. Lew, "*Depinning assisted by domain wall deformation in cylindrical nanowires*", Journal of Applied Physics 115, 083913 (2014).
58. C. Guite, I. S. Kerk, Chandrasekhar Murapaka, R. Maddu, S. Goolaup, and W.S. Lew, "*All-electrical single domain wall generation for on-chip applications*", Scientific Reports, 7, 7459 (2014).
59. W.L. Gan, Chandrasekhar Murapaka, D.W. Wong, I. Purnama, S.Y. Chiam, N. Wong and W.S. Lew, "*Multi-vortex states in magnetic nanoparticles*", Applied Physics Letters 105, 152405 (2014).
60. I. Purnama, Chandrasekhar Murapaka, W. S. Lew and T. Ono, "*Remote driving of multiple magnetic domain walls due to topological interaction*", Applied Physics Letters 104, 092414 (2014).
61. R. Maddu, I. Purnama, S. Goolaup, Chandrasekhar Murapaka, and W.S. Lew, "*Investigation of dominant spin wave modes by domain walls collision*", Journal of Applied Physics 115, 243908 (2014).
62. Y. P. Liu, S. Goolaup, W. S. Lew, I. Purnama, Chandrasekhar Murapaka, S. Goolaup, T. Zhou and S. K. Wong, "*Excitonic bandgap dependence on stacking configuration in four layer graphene*", Applied Physics Letters 103, 163108 (2013).
63. G. C. Han, Q. Jinjun, Q. J. Yap, L. Ping, Chandrasekhar Murapaka, Z. Baoyu, K. C. Weng, "*Gap layer effect on performances of differential dual spin valve*", IEEE Transactions on Magnetics. 49, 3714 (2013).
64. Chandrasekhar Murapaka, H. F. Liew, I. Purnama, W. S. Lew, M. Tran and G. C. Han, "*Helical domain walls in constricted cylindrical NiFe nanowires*", Applied Physics Letters 101, 152406 (2012).

65. Chandrasekhar Murapaka, C. C. Wang, G. C. Han and W. S. Lew, "*Effect of interlayer coupling on the reversal process of differential dual spin valves*", Journal of Applied Physics 111, 07B723 (2012).
66. X. H. Wang, Chandrasekhar Murapaka, I. Purnama, W. S. Lew, S. Goolaup and C. X. Cong, "*Magnetization reversal in nano triangles fabricated by nanosphere lithography*", Thin Solid Films 520, 6980 (2012).
67. X. H. Wang, I. Purnama, Chandrasekhar Murapaka and W. S. Lew, "*Highly Stable Vortex State in Sub-100nm Nanomagnets*", Applied Physics Express 5, 053001(2012).
68. Chandrasekhar Murapaka, S. Goolaup, I. Purnama and W. S. Lew, "*Crossover in the domain wall potential polarity as function of anti-notch geometry*", Journal of Physics D: Applied Physics 44, 235002 (2011).
69. I. Purnama, Chandrasekhar Murapaka, S. Goolaup and W. S. Lew, "*Collective motions assisted by magentostatic interactions in coupled domain wall system*", IEEE Transactions on Magnetics. 47, 3081 (2011).
70. I. Purnama, Chandrasekhar Murapaka, S. Goolaup and W. S. Lew, "*Current induced coupled domain walls motion in two-nanowire system*", Applied Physics Letters 99, 152501 (2011). (Appeared in Virtual Journal of Nanoscience and Nanotechnology).
71. A. Amarnath Reddy, Chandrasekhar Murapaka, K. Pradeesh, S. Suresh Babu and G. Vijaya Prakash, "*Optical properties of Dy^{3+} -doped sodium-aluminium-phosphate glasses*", Journal of Material Science 46, 2018 (2011).
72. S. Goolaup, S. C. Low, Chandrasekhar Murapaka and W. S. Lew, "*Dependence of pinning on domain wall spin structure and notch geometry*", Journal of Physics: Conference Series 266, 012079 (2011).
73. Y. P. Liu, S. Goolaup, Chandrasekhar Murapaka, W. S. Lew and S. K. Wong, "*Effect of magnetic field on the electronic transport in trilayer graphene*," ACS Nano, 4, 7087 (2010). (Highlighted by Nature publishing group NPG Asia Materials).

Book chapters contributed

1. "Domain wall programmable logic", S. Goolaup, Chandrasekhar Murapaka, W. S. Lew, "Emerging non-volatile memory technologies", Springer (2021).
2. "Spintronic based memory and logic devices" Jyotirmoy Chatterjee, Pankaj Sethi and Chandrasekhar Murapaka, "Nanoscale Devices: Physics, Modeling, and Their Application" CRC Press (2018).
3. "Magnetic domain walls for memory and logic applications", Chandrasekhar Murapaka, Indra Purnama and Wen Siang Lew, "Advances in Magnetic Materials: Processing, Properties and Performance", CRC Press (2017).

Patents Granted (7)

1. "Non-Volatile Logic Device", W.S. Lew, Chandrasekhar Murapaka, I. Purnama, S. Goolaup, P. Sethi and C. Guite, US Patent US9431599B2 (Granted).

2. "Memory device including a domain wall and ferromagnetic driver nanowire", W. S. Lew, I. Purnama and Chandrasekhar Murapaka, US patent US9502090B2 (Granted).

3. "Magnetic Random Number Generator", P. Sethi, Chandrasekhar Murapaka and W. S. Lew, US patent US01027016B2 (Granted).

4. "Skyrmion based majority logic gate in nanomagnetic device", B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka, Indian Patent (202241010372) (Granted on 26/06/2023).

5. "Domain wall tunnelling and logic operations in ferromagnetic nanostructures", Surya Jammalamadaka, Chandrasekhar Murapaka and Sreeveni MD, Indian Patent (201941048936) (Granted on 16/01/2024).

6. "Magnetic logic device, circuit having magnetic logic devices and methods for controlling the magnetic logic device and the circuit", G. J. Lim, Chandrasekhar Murapaka and W. S. Lew, Singapore (11202202132V) (Granted on 08/08/2024).

7. "A Skyrmion based device for performing logic operations", Sarwath Sara, Chandrasekhar Murapaka, A. Haldar, Indian Patent (202441036681) (Granted on 06/02/2025).

Patents Filed (5)

8. "System and method for a skyrmionic logical adder for electronic circuit" S Sivasubramani, B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka, A. Acharya, Indian Patent (202441031123) Filed (2024).

9. "NiFe/FeMn exchange biased systems for bias field-free magnetization dynaimcs", B. Panigrahi, A. Haldar, Chandrasekhar Murapaka Indian patent (202241051146) (filed) (2022).

10. "Reconfigurable logic via gate controlled skymrion motion", B Paikaray, K. Mahathi, A Haldar, Chandrasekhar Murapaka, Indian Patent (202141057701) (Filed) (2021).

11. "A Skyrmion based counter" S Sivasubramani, C. Kishore, S. Sara, Chandrasekhar Murapaka, A Haldar, A. Acharya, Indian Patent (202441071776) Filed (2024).

12. "Method and system to operate tsetlin machines using skyrmions", C. Kishore, S. Sara, Chandrasekhar Murapaka, A Haldar, A. Acharya, Indian Patent (202441071705) Filed (2024).