CURRICULUM VITAE

Name: **Arghya Taraphder**

Designation: **Professor**

Affiliation: **Department of Physics**

Also at The Centre for Nanoscience and Nanotechnology

Indian Institute of Technology, Kharagpur 721302, India.

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Date of Birth: **October 03, 1961**

Place of birth: **Calcutta, India.**

Educational qualifications:

School leaving (Class X) West Bengal Board	**1977**	**1st Divn.**
Higher Secondary (Class XII) West Bengal Board	**1979**	**1st Divn.**
B.Sc (Physics Hons.) Calcutta University	**1982**	**1st class (1st rank).**
M.Sc. (Physics) Calcutta University	**1984**	**1st class.**
Ph.D.	**Indian Institute of Science, Bangalore**	**1991**

Awards/honours: Jagadish Bose National Talent Search Scholarship, Jubilee gold medal, Calcutta University, ICTP Regular associate 1997-2005.

Thesis for Ph.D.:

Ph.D. in Physics : Indian Institute of Science, Bangalore 1991, thesis title

Theoretical Studies of Some Models of High-Tc Oxide Superconductors:

I. An Anderson Impurity Model for Core-level Photoemission Spectroscopy in Cuprates.
II. Negative-U, Extended-Hubbard Model for Barium Bismuthates.

Professional and administrative experience:

Professional Positions:

India:

Fellow (tenure track, senior lecturer grade, in DAE Inst.), Mehta (Harish Chandra) Research Institute, Allahabad, Sep. 1994 – Oct. 1998
Asst. Professor, IIT Kharagpur, February 1998 - Apr. 1999
Associate Professor, IIT Kharagpur, May 1999 - April 2007
Professor, IIT Kharagpur, April 2007 – present
Professor (HAG), IIT Kharagpur Aug 2019 – present
Head, Centre for Theoretical Studies, IIT Kharagpur June 1998-Feb. 2001
Head, Department of Physics, Feb.2014-Jan.2017
Professor (on deputation), IIT Mandi, Jan. 2012-Dec.2012
Professor (on deputation), IIT Mandi, March. 2018-June.2019

Outside:

Visiting Asst. Professor (on leave from HRI), IIT Kharagpur, Nov. 1996 - February 1998
Postdoctoral Associate in the Condensed Matter Physics Group, Rutgers University, USA: Aug. 1991 - Jan. 1993
Visiting Scientist, NEC Research Institute, Princeton, USA: Aug. 1991 - Jan. 1993
Visiting Scientist, LEPES, CNRS, Grenoble, France: Feb. 1993 – July 1994
Visiting Professor, Michigan State University, July 1999
Visiting Professor, University of Neuchatel, Switzerland
Visiting Professor, Michigan State University, Feb. 2001-Apr. 2001
Visiting Associate, ICTP, Trieste Italy, May 2001-July 2001
Visiting Professor, Michigan State University, May 2001- July 2001
Visiting Professor, Humboldt University, Berlin, May 2003
Visiting Associate, ICTP, Trieste Italy, June 2003-Aug 2003
Visiting Professor, University of Neuchatel, Switzerland, Aug-Sep 2003
Visiting Professor, ICMM, CSIC, Madrid, Spain Oct. 2003-Sep. 2004
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, Oct. 2004 - Dec. 2004
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, May 2005 - July 2005

Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, May 2006 - July 2006
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, May 2007 - July 2007
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, Jan 2008 - April 2008
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, May 2009 – July 2009
Guest Scientist, Max Planck Institute for Physics of Complex Systems, Dresden, Germany, May 2010 – July 2010
Visiting Professor, Michigan State University, June 2013- July 2013
Visiting Professor, University of Witswatersrand, Johannesburg, Aug 2014
Academia Sinica Foreign Expert, Yangchen Institute of Technology, China, Dec. 2014
Academia Sinica Foreign Expert, Yangchen Institute of Technology, China, June. 2015 to JuLy 2015

Visiting Scientist, Hiroshima Synchrotron Radiation Center, Hiroshima University, Feb 2019

Ph.D. Thesis Guidance:

Ten Ph.D. scholars awarded the degree. Present research group: Six Ph.D students, one post-doctoral fellow, one 5 year visiting faculty.

Students awarded the degree and thesis title:

Solo Guidance:

Tulika Maitra (2003): Phenomenological studies on correlated electronic systems:

I. Order parameter symmetry in high temperature superconductors

II. Magnetic phase diagram of electron-doped manganites

Sudipta Koley (2013): Correlated electronic models for transition metal dichalcogenides

Narayan Mohanta (2016): Theoretical investigations on emergent phenomena at oxide interfaces

Swagata Acharya (2017): Studies on single- and two-particle responses of some strongly correlated models and materials

Subhasree Pradhan (2017): Ground state properties of certain interacting electronic and electron-lattice models in a magnetic field

Dibyendu Dey (2018): A first-principles study on the interplay of spin, orbital and lattice degrees of freedom in some correlated oxides

Snehasish Nandy (2019): Anomalous transport properties in topological materials

Urmimala Dey (2021): Optical, transport and topological properties of certain real and model systems

Joint Guidance:

Indira Chowdhury (with S K Ghatak, IIT Kharagpur, 2001): Model studies on electron-lattice interactions in cuprates and manganites

Proloy Taran Das (with T K Nath, IIT Kharagpur, 2016): Cooperative Phenomena and Nanosize effects in Doped Manganites

Ongoing:

Anasua Khan, Suvendu Ghosh, Abhirup Roy Karmakar, Ravi Kiran, Shubham Patel, Sudipta Biswas, Swarup Sangiri

Teaching:

At the level of BSc, B.Tech, M.Sc, M.Tech and Ph.D,. at the Indian Institute of Technology, Kharagpur

Courses: Classical Mechanics I & II, Quantum Mechanics I & II, Condensed matter physics I & II Statistical Mechanics I, II (BSc/MSc), Advanced condensed matter (MSc/Ph.D.), Quantum Many Body Physics (Ph.D.), Statistical mechanics I & II, Physics of Nanostructures (M.Tech.), Physics 101 (theory and laboratory, B. Tech.), Computational Physics theory and lab (MSc), Computational Methods for Materials Design (M Tech), Adv Stat Phys. (Ph.D);

NPTEL (Govt of India) online course: https://nptel.ac.in/courses/115105122 ; https://www.youtube.com/watch?v=7LL2_qTuiNU

Referee: APS journals: PRL, PRB, PRR, PRX, PRM, RMP; IOP journals: Europhysics Letters, JPCM, NJP, EPJB; Solid. State. Commun. Pramana, JMMM, IJMPB and various others.

Mentoring:

(i) Helped set up the basic sciences division in **IIT Mandi** (2012): worked in framing the UG and PG courses, research guidance modalities, advised in setting up **advanced research laboratories (XRay, HRTEM, ARPES, PPMS, SQUID, RAMAN, 14T Magnet, DLS, clean room)**, taught one full and one part course.
(i) Founding convener of Centre for Theoretical Studies, IIT Kharagpur.
(ii) UG and PG syllabus committee of Physics and engineering Physics, NIT Agartala.

Administrative:

(i) **IIT Mandi**: Involved in recruitment of faculty and staff, help in planning Research and
Teaching laboratories, design courses, act as a senate member (2012-2016).
(ii) **Head**, Department of Physics, IIT Kharagpur (Feb. 2014- Jan. 2017).
(iii) **Head**, Centre for Theoretical Studies, IIT Kharagpur (June 1998-Feb 2001).
(iv) **Member, board of studies**: Vidyasagar University, Medinipur. **Member, doctoral**
committee, Presidency University, Kolkata. **Member, academic programme committee**, IIEST, Shibpur. **Member PG and UG committee** and curriculum development committee, Kazi Nazrul University, Asansol (Govt. of West Bengal).

Sponsored Projects:

DST: Theoretical Studies on the magnetic and orbital order in colossal magnetoresistive manganites (1998-2001, Rs. 8 lakh)

DST (with. D. Parihari): Theoretical investigations on correlated electronic systems (2009-2011, Rs.12 lakh)

BRNS (with T. K. Nath and D. Gaitonde): Effect of nanometer scale grain size modulation on electrical, magnetic and magneto-transport properties of CMR manganites (2006-2008, Rs. 30 lakh)

CSIR: Electronic structure and transport in correlated electronic systems (2016-2018, Rs. 1.625 million)

National supercomputing mission (NSM) project for high performance computing (co-author of the IIT Kharagpur project, 2016. Rs. 90 Crore)

SERB (Govt of India), Correlated Electronic Properties of the Heterostructures of Layered Transition Metal Dichalcogenides, Rs. 1.5 million

Research Interests:

Problems in Condensed-Matter Physics -- Correlated and disordered electronic systems, Quantum matter, Phase transitions, Statistical mechanics:

Quantum matter

- Correlation driven metal insulator transitions, charge (or Spin)-density wave and other instabilities in electron systems, High-Tc superconductors, heavy fermions and Kondo effect, metamagnetism, d- and f-electron systems

- Modeling of materials: Electronic structure, Phenomenology and modeling of correlated systems. dichalcogenides and various other systems.

- Oxide Hetero-Interfaces: nature of superconductivity, magnetism, Lifshitz transition, Majorana modes, disorder. Topological effects in condensed matter.

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- Electron-phonon interaction, formation and stability of polarons. Electrons in a strong magnetic field.

- Correlated, disordered Bosons: phase diagram, low-lying excitations and thermodynamics, competition between correlation and disorder.

- Topological materials: transport and optical activities.

Statistical mechanics

- Statistical mechanics of quasicrystals, NP-complete problems in physics

- Modeling and Epidemiology of infectious diseases

List of Publications:

1. The Travelling Salesman Problem on a Randomly Diluted Lattice, D. Dhar, M. Barma, B. K. Chakraborty and **A. Taraphder**, *J. Phys. A* **20**, 5289 (1987). Citation: 11

2. Electronic Structure of High-Tc Cuprates from Core-level Photoemission Spectroscopy of Cuprates, D. D. Sarma **A. Taraphder**, *Phys. Rev. B* **39**, 11570 (1989). Citation: 27
3. Hole Pairing within an Extended Anderson Impurity Model Applicable to the High-Tc Cuprates, D. D. Sarma, S. Ramasesha and **A. Taraphder**, *Phys. Rev. B* **39**, 12286 (1989). Citation: 7
4. Heavy Fermion Behaviour in a Negative-U, Anderson Model, **A. Taraphder** and P. Coleman, *Phys. Rev. Lett* **66**, 2814-2817 (1991). Citation: 125
5. Exotic Physics in the Negative-U, Extended-Hubbard Model for Barium Bismuthates, **A. Taraphder**, H.R. Krishnamurthy, R. Pandit, and T.V. Ramakrishnan, *Europhys. Lett.*, **21**, 79-85 (1993). Citation: 22
6. Fluctuating Phase Pairs in High Tc Superconductors, B. K. Chakraverty, **A. Taraphder** and M. Avignon, *Physica C* (superconductivity) **235-240**, 2323-2324 (1994). Citation: 25
7. Local attractive Interaction and Anomalous Normal State Properties in Barium Bismuthates, **A. Taraphder** and B. K. Chakraverty, *(Supercond.)* **235-240**, 2351-2352 (1994). Citation: 1
8. The Negative-U, Extended-Hubbard Model for Doped Barium Bismuthates, **A. Taraphder,** H.R. Krishnamurthy, R. Pandit, and T. V. Ramakrishnan, *Phys. Rev. B*, **52** 1368 (1995). Citation: 56
9. The Exotic Barium Bismuthates , **A. Taraphder,** H.R.Krishnamurthy, R. Pandit, and T. V. Ramakrishnan, *Int. J. Mod. Phys.* **10**, 863-954 (1996). Citation: 39
10. Fluctuation Effects and The Order Parameter Symmetry in Cuprate Superconductors, B. Chattopadhyay, D. Gaitonde and **A. Taraphder**, *Europhys. Lett*., **34**, 705-710 (1996). Citation: 22
11. Order Parameter Symmetry in $YBa_2Cu_3O_7$, P. K. Mohanty and **A. Taraphder**, *J. Phys. Condensed Matter* 10, 10621-10632 (1998). Citation: 2
12. Density of states and localization study of the double-exchange model in one and two dimensions, V. Cerovsky, S. D. Mahanti, T. A. Kaplan and **A.**

Taraphder, *Phys. Rev. B* **59**, 13977 (1999). Citation: 12

13. On the possible mechanism of structural transition in cuprates, ,S. K. Ghatak and A. **Taraphder** *Physica C(supercond.)* 311, 273 (1999). Citation: 3
14. Density of states in a multicomponent model for superconductivity in cuprates, Indira Chaudhuri, S. K. Ghatak and **A. Taraphde**r, *Physica C (supercond.)* 315, 166 (1999). Citation:1
15. Gap anisotropy in the angle-resolved photoemission spectroscopy of $Bi_2Sr_2CaCu_2O_{8+\delta}$, Tulika Maitra and **A. Taraphder,** *Physica C* (superconductivity) 325, 61 (1999). Citation: 3
16. Pseudogap and its influence on normal and superconducting states of cuprates, Indira Chaudhuri, **A. Taraphder** and S. K. Ghatak , *Physica C* (supercond) 353, 49 (2001). Citation: 6
17. Antiferromagnetism and superconductivity in a model with extended pairing interaction, Tulika Maitra, H. Beck and **A. Taraphder**, *European Physical Journal* B **21**, 527 (2001). 7
18. Double exchange and orbital correlation in electron doped manganites, Tulika Maitra and **A. Taraphder**, *Europhysics Letters* **59**, 896 (2002). Citation: 11
19. Magnetic, orbital and charge ordering in electron doped manganites, Tulika Maitra and **A. Taraphder**, *Phys. Rev. B.* **68**, 174416 (2003). Citation: 27
20. Magnetic and orbital order in overdoped bilayer manganites, Tulika Maitra and **A**. **Taraphder**, *Europhysics Letters* **65**, 262 (2004). 8
21. Orbital ordering and magnetic structures in LMFO and LWFO double perovskites, **A. Taraphder** and F. Guinea, *Phys. Rev. B* **70**, 224438 (2004). Citation: 6
22. Colossal magnetoresistance manganites, **A. Taraphder**, invited review article, *Physics Teacher,* **46**, 11 (2004)
23. Charge order and phase segregation in overdoped bilayer manganites, Tulika Maitra, H. Beck and **A. Taraphder**, *J. Phys. Cond-mat*. **17**, 4333 (2005). Citation: 2
24. Magnetic properties in doped GdI_2, Tulika Maitra, **A. Taraphder**, A. Yaresko

and P. Fulde, *Eur. Phys. J. B* **49**, 433 (2006). Citation:20

25. A study of long-range order in certain two-dimensional frustrated lattices, Uma Bhaumik and **A. Taraphder,** *J. Phys. Cond-mat.*18, 8251 (2006). Citation: 4
26. The overdoped colossal resistive manganites, **A. Taraphder,** *J. Phys. Cond-mat*., (Invited article) **19**, 445 (2007). Citation: 18
27. Effect of substrate-induced strain on transport and magnetic properties of epitaxial $La_{0.66}Sr_{0.33}MnO_3$ thin films, Puja De, T. K. Nath and **A. Taraphder,** *Appl. Phys. Lett.* **91**, 012511 (2007). Citation: 60
28. Pairing in disordered s-wave superconductors and the effect of their coupling, B. Chatterjee and **A**. **Taraphder**, *Solid State Commun*. **148**, 532 (2008). Citation: 6
29. GdI_2: A new ferromagnetic excitonic solid?, **A. Taraphder**, M. Laad, L. Craco and A. Yaresko, *Phys. Rev. Lett.* **101**, 136410 (2008). Citation: 26
30. Towards a possible charge-Kondo effect in optical lattices, M. Laad, L. Craco and **A. Taraphder,** *Europhys. Lett*. **88**, 2008 (2009). Citation: 4
31. Ground state phase diagram of a spinless, extended Falicov-Kimball model on a triangular lattice, Umesh Kumar, T. Maitra, I. Singh and **A. Taraphder**, *J. Phys. Condens. Matter* **22**, 295602 (2010). Citation: 19
32. Field dependent dynamics in the metallic regime of the half-filled Hubbard model, D. Parihari, N. S. Vidhyadhiraja and **A. Taraphder,** *J. Phys. Condens-matter* **23**, 055602 (2011). Citation: 6
33. An extended Falicov-Kimball model on a triangular lattice, Umesh K. Yadav, T. Maitra, Ishwar Singh, **A. Taraphder,** *Europhys. Letters*. **93**, 47013 (2011). Citation: 21
34. Preformed excitonic liquid route to a charge density wave in 2H-$TaSe_2$, **A. Taraphder**, S. Koley, N. S. Vidhyadhiraja, M. S. Laad, *Phys. Rev. Lett.* **106**, 236405 (2011). Citation:30
35. Unusual ferromagnetism in nanoparticle doped oxides and manganites, V. Dwivedi and **A. Taraphder**, *Solid State Commun.* **151**, 1999 (2011). Citation:

36. Quantum Critical Phase and Lifshitz Transition in an Extended Periodic Anderson Mode**l**, M S Laad , S Koley and **A Taraphder,** *J. Phys. Condens. Matter* **(**Fast Track Commun**) 24,** 232201 (2012) (appeared in the highlights brochure of JPCM, featuring the best articles of the year 2012). Citation: 5
37. Orbital order in $NaTiO_2$: A first principles study, Monika Dhariwal, T. Maitra, I.S. Tyagi, S. Koley and **A. Taraphder,** *Solid State Communications* **152,**1912 (2012). Citation: 5
38. **Metallicity and Ferromagnetism in Nanosystem of Charge Ordered $Nd_{0.5}Sr_{0.5}MnO_3$**, S. Kundu, T. K. Nath, A. K. Nigam, T. Maitra, and **A. Taraphder**, *J. Nanosci. Nanotechnol.* **12,** 943 (2012). Citation: 6
39. Phase segregation of superconductivity and ferromagnetism at the LaAlO3/SrTiO3 interface, N. Mohanta and **A. Taraphder**, *J. Phys. Condens. Matter* **26**, 025705 (2014). Citation: 18
40. Oxygen vacancy clustering and pseudogap behaviour at the LaAlO3/SrTiO3 interface,
    N Mohanta and **A Taraphder**, *J. Phys. Condens. Matter* **26**, 215703 (2014). Citation: 23
41. Preformed excitons, orbital selectivity, and charge-density-wave order in 1T-$TiSe_2$,
    S. Koley, M. S. Laad, N. S. Vidhyadhiraja and **A. Taraphder**, *Phys. Rev. B* **90**, 115146 (2014) Citation: 25
42. Topological superconductivity and Majorana bound states at the LaAlO3/SrTiO3 interface, N Mohanta and **A. Taraphder,** *Europhys. Letters*, **108**, 60001 (2014). Citation: 33
43. The unusual normal state and charge-density-wave order in 2H-NbSe2, S Koley, N. Mohanta, **A. Taraphder,** *J. Phys. Condens. Matter* **27**, 185601 (2015) Citation: 11
44. Multiband theory of superconductivity in LaAlO3/SrTiO3 interface, N. Mohanta and **A. Taraphder**, *Phys. Rev. B*. **92**, 174531 (2015) Citation:18

45. Feasibility of a metamagnetic transition in correlated systems, S. Acharya, A. Medhi, N S Vidhyadhiraja and **A. Taraphder**, *J. Phys. Condens. Matter* **28** 116001 (2016) Citation: 5
46. Orbital effects of strong magnetic field on a two-dimensional Holstein polaron, Subhasree Pradhan, M. Chakraborty and **A. Taraphder**, *Phys. Rev. B*. **93**, 115109 (2016) Citation: 4
47. Edwards polaron formation: From 1D to 3D, M. Chakraborty, N. Mohanta, **A. Taraphder,** B. I. Min and H. Fehske, *Phys. Rev. B* **93**, 155130 (2016) Citation: 4
48. Orbital ordering in $Fe_{1-x}Mn_xV_2O_4$: A first principles study, D. Dey, Tulika Maitra and **A. Taraphder**, *Phys. Rev. B* **93**, 195133 (2016) Citation: 9
49. Correlated Non-Gaussian phase fluctuations in LaAlO3/SrTiO3 heterointerface Gopi Nath Daptary, S. Kumar Pramod Kumar, A. Dogra, N. Mohanta, **A. Taraphder**, A. Bid, *Phys. Rev. B* **94**, 085104 (2016) Citation:16
50. Anomalous transport near the Lifshitz transition at the LaAlO3/SrTiO3 interface, S. Nandy, S. Acharya, N. Mohanta and **A. Taraphder**, *Phys. Rev. B***. 94** 155103 (2016) Citation: 11
51. Exciton condensation in an extended Falicov-Kimball model in the presence of orbital magnetic field, Subhasree Pradhan and **A. Taraphder**, *Europhys. Lett.* **116,** 57001 (2016) Citation: 5
52. First-Principles Correlated Approach to the Normal State of Strontium Ruthenate, Swagata Acharya, M. S. Laad, Dibyendu Dey, T. Maitra and **A. Taraphder**, *Scientific Reports,* **7**, 43033 (2017) Citation: 10
53. Observation of transient superconductivity at LaAlO$_3$-SrTiO$_3$ interface Gopi Nath Daptary, Shelender Kumar, Aveek Bid, Pramod Kumar, Anjana Dogra, and R. C. Budhani, Dushyant Kumar, N. Mohanta, **A. Taraphder,** *Phys. Rev. B***. 95** 174502 (2017) Citation: 10
54. Chiral Anomaly as the Origin of the Planar Hall Effect in Weyl Semimetals, S. Nandy, Girish Sharma, A. Taraphder, Sumanta Tewari, *Phys. Rev. Lett*. 119, 176804 (2017) Citation:134

55. Dramatically Enhanced Superconductivity in Elemental Bismuth from Excitonic Fluctuation Exchange, S. Koley, M. S. Laad, **A. Taraphder**, *Scientific Reports*. **7**, 10993 (2017) Citation: 6
56. Nature of the spiral state, electric polarisation and magnetic transitions in Sr-doped YBaCuFeO5: A first-principles study, Dibyendu Dey, S. Nandy, T. Maitra, C. S. Yadav, **A. Taraphder,** *Scientific Reports*, **8**, 2404 (2018) Citation: 13
57. Metal-insulator transition in copper oxides induced by apex displacements, Swagata Acharya, C´edric Weber, Evgeny Plekhanov, Dimitar Pashov, **A Taraphder** and Mark Van Schilfgaarde, *Phys. Rev. X* **8**, 021038 (2018) Citation: 25
58. Quantum criticality associated with dimensional crossover in the isoelectronic series Ca2−xSrxRuO4, SwagataAcharya , DibyenduDey, TMaitra and **A Taraphder**, J. Phys. Commun.**2,** 075004 (2018) Citation: 8
59. Antisite-disorder engineering in La-based oxide heterostructures via oxygen vacancy control, Urmimala Dey, Swastika Chatterjee and **A. Taraphder**, Phys. Chem. Chem. Phys., **20**, 17871 (2018) Citation: 3
60. Effect of structural disorder and Coulomb interactions in the superconductorinsulator transition applied to boron doped diamond, R. McIntosh, N. Mohanta, **A. Taraphder**, and S. Bhattacharyya, AIP Advances **8**, 075109 (2018) Citation: 3
61. Bulk band inversion and surface Dirac cones in LaSb and LaBi : Prediction of a new topological heterostructure, Urmimala Dey, MonodeepChakraborty, **A.Taraphder**, Sumanta Tewari, Scientific Reports **8**, 14867 (2018) Citation: 12
62. Berry phase theory of planar Hall effect in Topological Insulators, S. Nandy, **A. Taraphder**, Sumanta Tewari, Scientific Reports **8**, 14983 (2018) Citation: 21
63. Suppression of Hall number due to charge density wave order in high-Tc cuprates, Girish Sharma, S. Nandy, **A. Taraphder**, Sumanta Tewari, Phys. Rev. B **97**, 195153 (2018) Citation:9

64. Ultrafast time-resolved investigations of excitons and biexcitons at room temperature in layered WS_2, R. K. Chowdhury, S. Nandy, S. Bhattacharya, M. Karmakar, B.N. S. Bhaktha, P. K. Datta, **A. Taraphder,** and S. K. Ray, 2D Materials **6**, 015011 (2018) Citation:16
65. Rare Earth Doping and Effective Band-Convergence in SnTe for Improved Thermoelectric Performance, Somnath Acharya, Dibyendu Dey, Tulika Maitra, Ajay Soni, **A. Taraphder**, Applied Physics Letters **113**, 193904 (2018) Citation:16
66. Mirror anomaly and anomalous Hall effect in type-I Dirac semimetals**,** S. Nandy, Kush Saha, **A. Taraphder**, Sumanta Tewari, Phys. Rev. B **99**, 075116 (2019) Citation: 2
67. Slave Rotor Approach to Exciton Condensation in a Two-band System, Subhasree Pradhan, **A. Taraphder**, J. Phys.: Condens. Matter **31**, 015601 (2019) Citation: 2
68. High temperature–high pressure phase transformation of Cu, Urmimala Dey, Nilanjan Mitra**, A. Taraphder**, Computational Materials Science 170 109154 (2019) Citation:3
69. Effect of spin-orbit interaction on the vortex dynamics of LaAlO3/SrTiO3 interfaces near the superconducting transition, Gopi Nath Daptary, Hemanta Kumar Kundu, Pramod Kumar, Anjana Dogra, Narayan Mohanta, **A. Taraphder**, Aveek Bid, Phys. Rev. B **100**, 125117 (2019) Citation: 2
70. Planar Thermal Hall Effect in Weyl Semimetals**,** S. Nandy, **A. Taraphder**, Sumanta Tewari, Phys. Rev. B 100, 115139 (2019) Citation: 14
71. Non-linear Nernst effect in bilayer WTe2, Chuanchang Zeng, Snehasish Nandy, **A. Taraphder**, Sumanta Tewari, Phys. Rev. B **100**, 245102 (2019) Citation: 15
72. Dynamic chiral magnetic effect and anisotropic natural optical activity of tilted Weyl semimetals, Urmimala Dey, S. Nandy, **A. Taraphder**, Scientific Reports **10**, 2699 (2020) Citation: 8

73. Charge Density Wave and Superconductivity in Transition Metal Dichalcogenides, S. Koley, N. Mohanta, **A. Taraphder**, Eur. Phys. J. B. **93**, 77 (2020) (Invited article) Citation:5
74. Phonon dispersion, Raman spectra and evidence for spin-phonon coupling in MnV2O4 from first-principles, Dibyendu Dey, T. Maitra, U. V. Waghmare, **A. Taraphder**, Phys. Rev. B**. 101,** 205132 (2020) Citation: 4
75. Growth of tumour due to Arsenic and its mitigation by black tea, H.M. Srivastava, U. Dey, A. Ghosh, J.P. Tripathi, S. Abbas, **A. Taraphder**, M. Roy, Alexandria Engineering Journal, **59,** 1345 (2020) Citation:4
76. Magnetic switching in Weyl semimetal-superconductor heterostructures, Narayan Mohanta, **A. Taraphder**, Elbio Dagotto, and Satoshi Okamoto, Phys. Rev. B **102**, 064506 (2020) Citation: 6
77. Immunomodulatory role of black tea in the mitigation of cancer induced by inorganic arsenic, Ravi Kiran, Swati Tyagi, Syed Abbas, M. Roy, **A. Taraphder**, Eur. Phys. J. Plus **135,** 735 (2020) Citation:2
78. Chirality-dependent planar Hall effect in inhomogeneous Weyl semimetals, Suvendu Ghosh, Debabrata Sinha, Snehasish Nandy, and **A. Taraphder**, Phys. Rev. B (Rapid Comm) **102**, 121105(R) (2020) Citation:6
79. Local ferroelectric polarization in antiferroelectric chalcogenide perovskite BaZrS3 thin films, Juhi Pandey, Debjit Ghoshal, Dibyendu Dey, Tushar Gupta, **A. Taraphder**, Nikhil Koratkar, Ajay Soni, Phys Rev B **102**, 205308 (2020) Citation:4
80. Defect-induced modulation of magnetic, electronic and optical properties of double perovskite oxide La_2CoMnO_6, Anasua Khan, Swastika Chatterjee, T. K. Nath, **A. Taraphder**, Phys. Rev. B **104**, 035152, (2021) Citation: 3
81. Interplay between Charge Density Wave Order and magnetic field in Non-magnetic Rare-Earth Tritelluride LaTe3, Arnab Pariari, Sudipta Koley, Shubhankar Roy, Ratnadwip Singha, Mukul S. Laad, **A. Taraphder**, Prabhat Mandal, Phys. Rev. B **104**, 155147, (2021) Citation: 4
82. Giant nonlinear response due to unconventional magneto-oscillations in nodal-

line semimetals; Debabrata Sinha and **A. Taraphder**, Phys. Rev. B **104,** 245141 (2021) citation:2

83. Effect of population migration and punctuated lockdown on the spread of SARS-CoV-2, Ravi Kiran, Syed Abbas, M. Roy, **A. Taraphder**, Nonautonomous Dyn. Syst. **8**, 251 (2021): Citation 3
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