Faculty Profile

Name: Dr. Surya Chattopadhyaya

Designation: Professor

Department/Centre: Physics

Phone Number: +91-9436503751 (M)

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Date of joining Tripura University: 30-01-2009

Educational Qualifications:

(i) M.Sc. in Physics, Tripura University, Agartala, Tripura

(ii) GATE, NET (CSIR Junior Research Fellowship Scheme)

(iii) Ph.D. in Theoretical Chemical Physics (Molecular Spectroscopy), Jadavpur University, Kolkata, West Bengal.

Work Experience

Name of the Organization	Designation	Period		Nature of Post
		From	To	
Ramkrishna Mahavidyalaya, Kailashahar, Tripura (A Government Degree College Under Govt. of Tripura)	Assistant Professor I & II	22 April 2002	29 January 2009	Permanent
Tripura University	Reader	30 January 2009	29 January 2012	Permanent
Tripura University	Associate Professor	30 January 2012	30 September 2016	Permanent
Tripura University	Professor	01 October 2016	Till date	Permanent

Subjects (Courses/Papers) teaching at the PG level:

(i) Classical Mechanics

(ii) Statistical Mechanics

(iii) Molecular Spectroscopy.

(iv) Density Functional Theory

(v) Electronics (Digital & Analog) Practical

Areas of Research Interest:

Theoretical Condensed Matter Physics & Materials Science; Electronic structure calculations, and calculations of physical properties of solids (bulk, 2D, and nanostructures) with Density Functional Theory (DFT); Theoretical Molecular Spectroscopy using the Configuration Interaction (CI) approach.

Details about Research:

The current research interest of my research group is the quantum mechanical solution of many-electron system under the framework of density functional theory (DFT) to explore different properties, e.g. structural, elastic, hydrogen storage, thermodynamic, electronic, photovoltaic, transport, thermoelectric, magnetic and optical properties of different bulk compounds, diverse nanostructures and 2D materials and their different types of alloys, different types of perovakites and their alloys, spinel compounds and their alloys etc. for finding their areas of optoelectronic, spintronic and mechanical, solid-state hydrogen storage applications.

Laboratory facilities:

Sl No	Name of equipments
1	Workstation
2	Desktop computers of High Configuration
3	Laptops of High Configuration
4	LAN & wi-fi-based internet connectivity

Research Supervision: (Ph.D.): Awarded - 08, Ongoing -01

SL	Name of the Scholar	Topic of Ph.D. Thesis	Year of Award	Name of Supervisor
1.	**Dr. Abhijit Nath**	Quantum mechanical studies of the electronic states and spectroscopic properties of some VIA intragroup heteronuclear diatomic molecules	2015	Dr. Surya Chattopadhyaya
2.	**Dr. Rahul Bhattacharjee**	Theoretical investigation of structural, electronic and optical properties of some binary compounds and their alkaline-earth element doped ternary alloys employing density functional theory (DFT) based FPLAPW methodology	2019	Prof. Surya Chattopadhyaya
3.	**Dr. Sayantika Chanda**	Theoretical investigation of physical properties of some chalcogenide ternary and quaternary alloys containing elements of transition metal group using density functional theory (DFT) based full-potential linearized augmented plane wave (FP-LAPW) approach	2023	Prof. Surya Chattopadhyaya
4.	**Dr. Debankita Ghosh**	First principle based theoretical investigation of physical properties of some chalcogenide ternary and quaternary alloys containing alkaline- earth and transition metal elements	2023	Prof. Surya Chattopadhyaya
5.	**Dr. Manish Debbarma**	Density functional theory (DFT) based investigations of physical properties of some mercury (Hg) doped alkaline-earth and transition metal chalcogenide ternary alloys	2023	Prof. Surya Chattopadhyaya
6.	**Dr. Utpal Sarkar**	Calculations of physical properties of some alkaline-earth element doped transition metal chalcogenide ternary alloys using density functional theory (DFT) based full-potential linearized augmented plane wave (FP-LAPW) methodology	2024	Prof. Surya Chattopadhyaya
7.	**Dr. Bimal Debnath**	Density functional investigations on physical properties of some binary alkaline-earth chalcogenide compounds and their different types of ternary alloys	2024	Prof. Surya Chattopadhyaya
8.	**Dr. Subhendu Das**	Density functional calculations of physical properties of different type of perovskite compounds and their alloys	2026	Prof. Surya Chattopadhyaya

<u>Research scholars registered</u>

[1] Mr. Karan Debnath (Registered in 2024)

Title of the Thesis: *Calculations of physical properties of some perovskite hydrides for solid-state hydrogen storage and other applications with density functional theory (DFT)*

List of Publications

77. A comparative theoretical investigation of structural and mechanical properties and spin-orbit coupling induced electronic and optical properties of lead-free $RbCaBr_3$ perovskite and Sn-doped $RbCa_{0.5}Sn_{0.5}Br_3$ alloy under biaxial strains for photovoltaic and optoelectronic applications

Subhendu Das, Karan Debnath, Manish Debbarma, Sudip Debnath, Surya Chattopadhyaya*

Bulletin of Materials Science **[SPRINGER]** (2026) (Article in Press)

Impact Factor: 2.1

76. Exploring hydrogen storage, mechanical, optoelectronic, and thermoelectric characteristics of Li_2BeXH_6 (X = Zn & Cd) double perovskite hydrides through density functional calculations

Karan Debnath, Manish Debbarma, Subhendu Das, **Surya Chattopadhyaya***

Computational Condensed Matter **[ELSEVIER] 46 (2026)** e01204

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2026.e01204

75. First-principles investigation of physical properties of Li_2MgMH_6 (M = Zn & Cd) double perovskite hydrides for solid-state hydrogen storage and some other applications

Karan Debnath, Manish Debbarma, Subhendu Das, Rahul Bhattacharjee, Sudip Debnath,

Surya Chattopadhyaya*

International Journal of Hydrogen Energy **[ELSEVIER]** 170 (2025) 151222

Impact Factor: 9.2

https://doi.org/10.1016/j.ijhydene.2025.151222

74. First principle investigation of some physical properties and applications of lead-free vacancy ordered double perovskite In_2PdCl_6 (IPC)

Subhendu Das, Manish Debbarma, Bimal Debnath, **Surya Chattopadhyaya***

Physica B: Condensed Matter **[ELSEVIER]** 695 (2024) 416539

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2024.416539

73. Effects of applied pressure on structural, electronic, and optical properties of magnesium incorporated wurtzite beryllium oxide at different magnesium compositions

Bimal Debnath, Subhendu Das, Sudip Debnath, Manish Debbarma, **Surya Chattopadhyaya***

Computational Condensed Matter **[ELSEVIER]** 41 (2024) e00959

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2024.e00959

72. First principle investigation of some physical properties of narrow band-gap vacancy ordered double perovskite In_2PdBr_6 (IPB) semiconductor

Subhendu Das, Manish Debbarma, **Surya Chattopadhyaya***

Interactions **[SPRINGER]** 245 (2024) 175

Impact Factor: 0.495

https://doi.org/10.1007/s10751-024-02023-8

71. Structural and optoelectronic properties of $Zn_{1-x-y}Be_xMg_yTe$/ InP quaternary alloys: A theoretical study

Debankita Ghosh, Manish Debbarma, **Surya Chattopadhyaya***

Solid State Communications [ELSEVIER] 390 (2024) 115615

Impact Factor: 2.8

https://doi.org/10.1016/j.ssc.2024.115615

70. First principal calculations for understanding physical properties and possible applications of vacancy ordered double perovskite Cs_2ZrI_6 (CZI)

Subhendu Das, Manish Debbarma, **Surya Chattopadhyaya***

Computational Condensed Matter [ELSEVIER] 38 (2024) e00881

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2024.e00881

69. **Consequences of magnesium incorporation on structural and optoelectronic properties of wurtzite cadmium sulphide: a first-principle-based theoretical study for UV optoelectronic applications"**

Utpal Sarkar, Manish Debbarma, Debankita Ghosh, **Surya Chattopadhyaya***

Bulletin of Materials Science **[SPRINGER]** 47 (2024) 19

Impact Factor: 2.1

https://doi.org/10.1007/s12034-023-03123-x

68. **First-principle calculations of structural and optoelectronic properties of wurtzite $Zn_{1-x-y}Be_xMg_yO$ quaternary alloys closely lattice matched to the ZnO substrate for UV-A optoelectronic applications"**

Debankita Ghosh, Manish Debbarma, **Surya Chattopadhyaya***

Physica B: Condensed Matter **[ELSEVIER]** 665 (2023) 415032

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2023.415032

67. Calculations of physical properties of Ba_2GdSbO_6 (BGSO) double perovskite for thermoelectric and solar cell applications

Subhendu Das, Manish Debbarma, **Surya Chattopadhyaya***

Physica B: Condensed Matter **[ELSEVIER]** 664 (2023) 414979

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2023.414979

66. Theoretical investigation of magnesium compositional variation of structural and optoelectronic properties of wurtzite $Mg_xZn_{1-x}Se$ ternary alloys through first-principle calculations

Utpal Sarkar, Manish Debbarma, Debankita Ghosh, **Surya Chattopadhyaya***

Pramana-Journal of Physics **[SPRINGER]** 96 (2022) 171

https://doi.org/10.1007/s12043-022-02407-x

65. Density functional study of structural and optoelectronic properties of wurtzite $Mg_xZn_{1-x}Te$ ternary alloys

Utpal Sarkar, **Surya Chattopadhyaya***

Materials Today: Proceedings **[ELSEVIER]** 65 (2022) 2560–2566.

Impact Factor: 0.428

https://doi.org/10.1016/j.matpr.2022.04.771

64. First-principles calculations to investigate transformation of optically inactive zinc-blend beryllium chalcogenides to optically active semiconductor alloys through doping of Hg atom(s)

Manish Debbarma, Debankita Ghosh, **Surya Chattopadhyaya***

Physica B: Physics of Condensed Matter **[ELSEVIER]** 638 (2022) 413881

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2022.413881

63. First-principles calculations to investigate structural, mechanical, electronic, magnetic and thermoelectric properties of Ba_2CaMO_6 (M=Re, Os) cubic double perovskites
Subhendu Das, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Bimal Debnath, Rahul Bhattacharjee, **Surya Chattopadhyaya***
Physica B: Physics of Condensed Matter **[ELSEVIER]** 626 (2022) 413554
Impact Factor: 3.2
https://doi.org/10.1016/j.physb.2021.413554

62. Tuning of optoelectronic and transport properties of zinc-blend magnesium chalcogenides through doping of Hg atom(s): The mBJ-GGA+U based first-principle calculations
Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Bimal Debnath, **Surya Chattopadhyaya***
Computational Condensed Matter **[ELSEVIER]** 30 (2022) e00650
Impact Factor: 4.0
https://doi.org/10.1016/j.cocom.2022.e00650

61. Pressure-induced structural, electronic and optical properties of wurtzite beryllium monoxide (w-BeO) from first-principle calculations.
Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Subhendu Das, Rahul Bhattacharjee, **Surya Chattopadhyaya***
Solid State Communications **[ELSEVIER]** 342 (2022) 114571
Impact Factor: 2.8
https://doi.org/10.1016/j.ssc.2021.114571

60**.** Investigation of structural, mechanical and optoelectronic properties of cubic $Cd_{1-x-y}Zn_xHg_ySe$ quaternary alloys through first-principle calculations.
Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Bimal Debnath, **Surya Chattopadhyaya***
Bulletin of Materials Science **[SPRINGER]** 45 (2022) 34
Impact Factor: 2.1
https://doi.org/10.1007/s12034-021-02610-3

59. First-principles investigations of composition-dependent mechanical properties of zinc-blende constituents of $Mg_xZn_{1-x}S_yTe_{1-y}$ rectangular quaternary system
Debankita Ghosh, Sayantika Chanda, Manish Debbarma, Bimal Debnath, **Surya Chattopadhyaya***
Indian Journal of Physics [**SPRINGER]** 96 (2022) 747-762.
Impact Factor: 1.7
https://doi.org/10.1007/s12648-021-02013-4

58. First-Principles Investigation of Structural, Elastic, Electronic and Optical Properties of $Cd_{1-x-y}Zn_xHg_yS$ Quaternary Alloys.

Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Bimal Debnath, **Surya Chattopadhyaya***

Journal of Electronic Materials (SPRINGER) 50 (2021) 4705-4726

Impact Factor: 2.8

https://doi.org/10.1007/s11664-021-08986-6

57. First principle calculations of structural, elastic, electronic and optical properties of cubic $Cd_{1-x-y}Zn_xHg_yTe$ triangular quaternary alloys and their compounds

Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Bimal Debnath, **Surya Chattopadhyaya***

Physica B: Physics of Condensed Matter **[ELSEVIER]** 614 (2021) 412999

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2021.412999

56. Composition dependence in mechanical properties of zinc-blende compounds associated with the $Cd_xZn_{1-x}S_yTe_{1-y}$ system: a density functional study.

Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Bimal Debnath, **Surya Chattopadhyaya***

Bulletin of Materials Science [**SPRINGER]** 44 (2021) 97

Impact Factor: 2.1

https://doi.org/10.1007/s12034-021-02372-y

55. Theoretical investigation of magnesium and selenium concentration-dependent elastic properties of zinc blende specimens under the $Mg_xZn_{1-x}Se_yTe_{1-y}$ quaternary system with density functional FP-LAPW approach.

Debankita Ghosh, Sayantika Chanda, Manish Debbarma, Bimal Debnath, **Surya Chattopadhyaya***

Mechanics of Materials **[ELSEVIER]** 158 (2021) 103840

Impact Factor: 4.1

https://doi.org/10.1016/j.mechmat.2021.103840

54. Structural and optoelectronic properties of cubic $Zn_{1-x-y}Be_xMg_ySe$ quaternary alloys nearly lattice matched to GaAs substrate: A density functional investigation.

Debankita Ghosh, Manish Debbarma, Sayantika Chanda, Bimal Debnath, Subhendu Das,

Rahul Bhattacharjee, **Surya Chattopadhyaya***

Materials Science in Semiconductor Processing **[ELSEVIER]** 130 (2021) 105803.

Impact Factor: 5.2

https://doi.org/10.1016/j.mssp.2021.105803

53. Calculations of selenium and cadmium concentration dependent elastic and thermal properties of zinc-blende specimens under $Cd_xZn_{1-x}Se_yTe_{1-y}$ quaternary system with density functional theory
Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Subhendu Das, Bimal Debnath, Rahul Bhattacharjee, **Surya Chattopadhyaya***
Materials Today Communications **[ELSEVIER]** 27 (2021) 102136
Impact Factor: 4.9
https://doi.org/10.1016/j.mtcomm.2021.102136

52. Cationic and anionic composition-dependent mechanical and thermal properties of zinc-blende specimens under $Mg_xZn_{1-x}S_ySe_{1-y}$ quaternary system: calculations with density functional FP-LAPW scheme
Debankita Ghosh, Manish Debbarma, Sayantika Chanda, Bimal Debnath, Rahul Bhattacharjee, Subhendu Das, **Surya Chattopadhyaya***
The European Physical Journal B [**SPRINGER]** 94 (2021) 20
Impact Factor: 1.7
https://doi.org/10.1140/epjb/s10051-020-00024-4

51. Beryllium (Be) composition dependent structural and optoelectronic characteristics of wurtzite $Be_xMg_{1-x}S$ ternary alloys: First principle calculations with FP-LAPW scheme
Bimal Debnath, Debankita Ghosh, Manish Debbarma, Sayantika Chanda, Subhendu Das, Rahul Bhattacharjee, **Surya Chattopadhyaya***
Materials Chemistry and Physics **[ELSEVIER]** 258 (2021) 123946.
Impact Factor: 5.2
https://doi.org/10.1016/j.matchemphys.2020.123946

50. First-principle calculations of structural and optoelectronic properties of cubic $Cd_xZn_{1-x}S_ySe_{1-y}$ quaternary alloys with modified Becke-Johnson (mBJ) functional
Sayantika Chanda, Debankita Ghosh, Bimal Debnath, Manish Debbarma, Rahul Bhattacharjee, **Surya Chattopadhyaya***
Indian Journal of Physics [**SPRINGER]** 95 (2021) 2313–2325
Impact Factor: 1.7
https://doi.org/10.1007/s12648-020-01880-7

49. Theoretical study of optoelectronic properties of hexagonal wurtzite $Cd_xZn_{1-x}O$ ternary alloys using modified Becke-Johnson (mBJ)-GGA Functional

Sayantika Chanda*, **Surya Chattopadhyaya**

Materials Today: Proceedings **[ELSEVIER]** 46 (2021) 6392

Impact Factor: 0.428

https://doi.org/10.1016/j.matpr.2020.06.136

48. First principle investigation of structural, electronic and optical properties of $Mg_xZn_{1-x}S$ hexagonal wurtzite ternary alloys

Utpal Sarkar*, **Surya Chattopadhyaya**

Materials Today: Proceedings **[ELSEVIER]** 46 (2021) 6207

Impact Factor: 0.428

https://doi.org/10.1016/j.matpr.2020.04.523

47. A theoretical investigation of structural, electronic and optical properties of wurtzite $Be_xZn_{1-x}O$ ternary alloys using DFT based FP-LAPW approach

Debankita Ghosh*, **Surya Chattopadhyaya**

Materials Today: Proceedings **[ELSEVIER]** 46 (2021) 6295

Impact Factor: 0.428

https://doi.org/10.1016/j.matpr.2020.05.212

46. First principle investigations of structural, electronic and magnetic properties of Cr doped zinc-blende MgTe ternary alloys with DFT based FP-LAPW approach

Subhendu Das, **Surya Chattopadhyaya**, Rahul Bhattacharjee*

Materials Today: Proceedings **[ELSEVIER]** 46 (2021) 6324

Impact Factor: 0.428

https://doi.org/10.1016/j.matpr.2020.05.491

45. Density Functional Calculations of Elastic and Thermal Properties of Zinc-Blende Mercury–Cadmium-Chalcogenide Ternary Alloys

Manish Debbarma, Subhendu Das, Bimal Debnath, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Metals and Materials International **[SPRINGER]** 27 (2021) 3823-3838

Impact Factor: 4.5

https://doi.org/10.1007/s12540-020-00778-7

44. Density functional study of elastic and thermal properties of cubic mercury-zinc-chalcogenide ternary alloys

Manish Debbarma, Subhendu Das, Bimal Debnath, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Bulletin of Materials Science **[SPRINGER]** 43 (2020) 268.

Impact Factor: 2.1

https://doi.org/10.1007/s12034-020-02236-x

43. Density functional study on structural and optoelectronic properties of cubic $Mg_xZn_{1-x}S_ySe_{1-y}$ semiconductor quaternary alloys

Debankita Ghosh, Sayantika Chanda, Bimal Debnath, Manish Debbarma, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Pramana-Journal of Physics **[SPRINGER]**, 94 (2020) 120.

Impact Factor: 2.3

https://doi.org/10.1007/s12043-020-01975-0

42. Cationic and anionic concentration dependent elastic properties of zinc blende specimens within $Cd_xZn_{1-x}S_ySe_{1-y}$ quaternary system: Calculations with density functional theory

Sayantika Chanda, Manish Debbarma, Debankita Ghosh, Subhendu Das, Bimal Debnath, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Solid State Communications **[ELSEVIER]** 322 (2020) 114050

Impact Factor: 2.8

https://doi.org/10.1016/j.ssc.2020.114050

41. Density functional calculations of elastic and thermal properties of zinc-blende HgS_xSe_{1-x}, HgS_xTe_{1-x} and $HgSe_xTe_{1-x}$ ternary alloys"

Manish Debbarma, Subhendu Das, Bimal Debnath, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Computational Condensed Matter **[ELSEVIER]** 24 (2020) e00482

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2020.e00482

40. Structural, mechanical and optoelectronic properties of cubic $Be_xMg_{1-x}S$, $Be_xMg_{1-x}Se$ and $Be_xMg_{1-x}Te$ semiconductor ternary alloys: a density functional study

Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Bulletin of Materials Science **[SPRINGER]** 43 (2020) 59

Impact Factor: 2.1

https://doi.org/10.1007/s12034-019-2006-y

39. Structural, mechanical and optoelectronic features of cubic $Mg_xCd_{1-x}S$, $Mg_xCd_{1-x}Se$ and $Mg_xCd_{1-x}Te$ semiconductor ternary alloys: Theoretical investigations using density functional FP-LAPW approach

Utpal Sarkar, Bimal Debnath, Manish Debbarma, Debankita Ghosh,

Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Computational Condensed Matter **[ELSEVIER]** 22 (2020) e00448

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2019.e00448

38. First principle investigations of structural and optoelectronic features of cubic $Cd_xZn_{1-x}S_yTe_{1-y}$ quaternary semiconductor alloys

Sayantika Chanda, Debankita Ghosh, Bimal Debnath, Manish Debbarma,

Rahul Bhattacharjee, **Surya Chattopadhyaya***

Optik - International Journal for Light and Electron Optics **[ELSEVIER]** 201 (2020) 163510

Impact Factor: 3.1

https://doi.org/10.1016/j.ijleo.2019.163510

37. Density Functional Investigations of Structural, Mechanical and Optoelectronic Properties of BeS_xSe_{1-x}, BeS_xTe_{1-x} and $BeSe_xTe_{1-x}$ Ternary Alloys

Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Journal of Electronic Materials **[SPRINGER]** 49 (2020) 1372

Impact Factor: 2.8

https://doi.org/10.1007/s11664-019-07820-4

36. Calculations of the structural and optoelectronic properties of cubic $Cd_xZn_{1-x}Se_yTe_{1-y}$ semiconductor quaternary alloys using the DFT-based FP-LAPW approach

Sayantika Chanda, Debankita Ghosh, Bimal Debnath, Manish Debbarma, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Journal of Computational Electronics **[SPRINGER]** 19 (2020) 1-25

Impact Factor: 2.8

https://doi.org/10.1007/s10825-019-01409-0

35. Structural and optoelectronic properties of cubic $Mg_xZn_{1-x}S_yTe_{1-y}$ semiconductor quaternary alloys-a first principles investigation

Debankita Ghosh, Sayantika Chanda, Bimal Debnath, Manish Debbarma, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Physica B: Condensed Matter **[ELSEVIER]** 574 (2019) 411669

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2019.411669

34. First principles investigations of structural and optoelectronic properties of cubic $Mg_xZn_{1-x}Se_yTe_{1-y}$ quaternary semiconductor alloys using FP-LAPW approach

Debankita Ghosh, Sayantika Chanda, Bimal Debnath, Manish Debbarma, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Applied Physics A **[SPRINGER]** 125 (2019) 644

Impact Factor: 3.0

https://doi.org/10.1007/s00339-019-2938-5

33. Structural, elastic and optoelectronic characteristics of $Be_xZn_{1-x}S$, $Be_xZn_{1-x}Se$ and $Be_xZn_{1-x}Te$ alloys-a density functional based FP-LAPW study

Surya Chattopadhyaya*, Utpal Sarkar, Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee

Computational Condensed Matter **[ELSEVIER]** 20 (2019) e00384

Impact Factor: 4.0

https://doi.org/10.1016/j.cocom.2019.e00384.

32. Density functional study of structural, elastic, electronic and optical properties of $Be_xCd_{1-x}S$, $Be_xCd_{1-x}Se$ and $Be_xCd_{1-x}Te$ alloys using FPLAPW approach

Surya Chattopadhyaya*, Utpal Sarkar, Bimal Debnath, Manish Debbarma,
Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee

Physica B: Condensed Matter **[ELSEVIER]** 563 (2019) 1–22

Impact Factor: 3.2

https://doi.org/10.1016/j.physb.2019.03.025

31. Density functional calculations of structural, elastic and optoelectronic features of $Mg_xZn_{1-x}S$, $Mg_xZn_{1-x}Se$ and $Mg_xZn_{1-x}Te$ alloys

Utpal Sarkar, Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Materials Chemistry and Physics **[ELSEVIER]** 230 (2019) 54–77

Impact Factor: 5.2

https://doi.org/10.1016/j.matchemphys.2019.03.050

30. First principle-based calculations of the optoelectronic features of HgS_xSe_{1-x}, HgS_xTe_{1-x} and $HgSe_xTe_{1-x}$ alloys with GGA+U functional

Manish Debbarma, Bimal Debnath, Debankita Ghosh, Sayantika Chanda,
Rahul Bhattacharjee, **Surya Chattopadhyaya***

Journal of Physics and Chemistry of Solids **[ELSEVIER]** 131 (2019) 86–103

Impact Factor: 5.9

https://doi.org/10.1016/j.jpcs.2019.03.009

29. Optoelectronic properties of $Ca_xBa_{1-x}X$ (X=S, Se and Te) alloys: A first principles investigation employing modified Becke-Johnson (mBJ) functional

Bimal Debnath, Manish Debbarma, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

International Journal of Modern Physics B **[World Scientific]** 33 (2019) 1950042

Impact Factor: 2.3

https://doi.org/10.1142/S0217979219500425

28. Influence of doping of mercury atom(s) on optoelectronic properties of binary cadmium chalcogenides - A density functional theory-based investigation with different exchange-correlation functionals and including spin-orbit coupling

Manish Debbarma, Utpal Sarkar, Bimal Debnath, Sayantika Chanda, Debankita Ghosh, Rahul Bhattacharjee, **Surya Chattopadhyaya***

Current Applied Physics **[ELSEVIER]** 18 (2018) 698–716

Impact Factor: 2.8

https://doi.org/10.1016/j.cap.2018.03.010

27. Effects of doping of mercury atom(s) on optoelectronic properties of binary zinc chalcogenides - A first principle based theoretical investigation

Manish Debbarma, Utpal Sarkar, Bimal Debnath, Debankita Ghosh, Sayantika Chanda, Rahul Bhattacharjee, **Surya Chattopadhyaya***

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Project:

Title of the Project	Awarding Agency	Period	Amount Sanctioned	Ongoing/ Completed
Quantum Mechanical Studies of the Electronic States of Oxides and Sulfides of Selenium and Tellurium	UGC, Govt. of India	01.04.2007-31.03.2010	Rs. 4,41,000/-	Completed

Seminar & Conference attended/organized

Sl. No.	**Name of the Conference / Seminar with date**	**Organized by**	**National / International**	**Presented Paper/ Delivered Invited lecture**
1	VI-th National Conference of the Physics Academy of the NORTH – EAST (PANE) (3-4th April, 2009)	Department of Physics, Tripura University	National	Paper Presented
2	First International Conference on Materials Science (ICMS-2013) 21-23 February, 2013	Department of Physics, Tripura University	International	Paper Presented
3	National Conference on Recent Trends of Research in Physics (NCRTRP-2015) 23-24 July, 2015	Department of Physics, Women's College, Agartala, Tripura.	National	Invited Lecture

4	UGC Sponsored National Seminar on "Recent Trend of Research in Chemistry - A new Horizon of Hopes". 08-09 August, 2015	Department of Chemistry, Women's College, Agartala, Tripura.	National	Paper Presented
5	National Seminar on Recent Trends in Material Science. 01 March, 2016	Department of Chemistry, D.D.M. College, Khowai, Tripura.	National	Paper Presented
6	UGC Sponsored National Seminar on "Chemistry Today and Tomorrow for Better Future". 05-06 August, 2016	Department of Chemistry, D.D.M. College, Khowai, Tripura.	National level	Paper Presented
7	Second International Conference on Materials Science (ICMS-2017) 16-18 February, 2017	Department of Physics, Tripura University	International	Paper Presented
8	Third International Conference on Materials Science (ICMS-2020) 04-06 March, 2020	Department of Physics, Tripura University	International	Paper Presented
9	XII-th National Conference of the Physics Academy of the NORTH – EAST (PANE) (15-17th December, 2021)	Department of Physics, Tripura University	National	Paper Presented
10	Fourth International Conference on Materials Science (ICMS-2024) 31 January-02 February, 2024	Department of Physics, Tripura University	International	Paper Presented