

Curriculum Vitae

Dr. Chhayabrita Maji

Personal Details

Date of Birth August 14, 1976
Address Institute of Chemical Technology Mumbai-
IndianOil Odisha Campus,
IIT Kharagpur Extension Centre,
Near Hotel Swosti Premium
Mouza- Samantpuri,
Bhubaneswar - 751013

Telephone +91 9748193903, +91 8981048123
E-mail chhayabrita@gmail.com
c.maji@iocb.ictmumbai.edu.in
Website www.chhayabrita.com

Nationality Indian
Gender Female
Marital Status Married



Education

09/1998 – 06/2005 **UGC-DAE Consortium for Scientific Research** *Indore, India*
Devi Ahilya Vishwa Vidyalaya
Doctor of Philosophy (Ph. D), Physics
Title: Electronic structure studies of Metals and Intermetallics
Supervisor: Dr. Sudipta Roy Barman

08/1996 – 06/1998 **RTM Nagpur University** *Nagpur, India*

Master of Science (M.Sc.), Physics (First Class)
Specialization: Condensed Matter Physics, X-ray
Master Thesis title: X-ray Diffraction of Thin Metallic Films
Supervisor: Prof. V.B. Sapre

08/1993 – 06/1996	RTM Nagpur University , St. Francis de Sales College Bachelor of Science (B. Sc.) (First Class) Subjects: Physics, Mathematics, Electronics	<i>Nagpur, India</i>
07/1992 – 06/1993	K.V. Vayusena, CBSE AISSCE (12 th) (First Class) Subjects: Physics, Chemistry, Biology, Mathematics, English	<i>Nagpur, India</i>
07/1990 – 06/1991	K.V. Vayusena, CBSE AISSE (10 th) (First Class) Subjects: Science, Mathematics, English, Social Science, Hindi	<i>Nagpur, India</i>

Work Experience

09/2018 – Present	Institute of Chemical Technology Mumbai-IndiaOil Odisha Campus Assistant Professor <ul style="list-style-type: none">• Teaching Integrated M. Tech. courses• Ph.D. Thesis supervision• Research on Advanced Functional Materials	<i>Bhubaneswar, India</i>
09/2016 – 09/2018	Indian Association for the Cultivation of Science Principal Investigator, DST Woman Scientist <ul style="list-style-type: none">• Research on Advanced Functional Materials• Ph. D. thesis supervision	<i>Kolkata, India</i>
11/2014 – 09/2016	Indian Association for the Cultivation of Science Research Associate – II <ul style="list-style-type: none">• Research on Advanced Functional Materials• Ph. D. thesis Supervision• Teaching Integrated Ph. D. courses	<i>Kolkata, India</i>
06/2008 – 09/2014	S. N. Bose National Centre for Basic Sciences Bose Fellow (Assistant Professor Temporary)	<i>Kolkata, India</i>

- Research on Quantum Films and Advanced Functional Materials
- Ph. D. Thesis Supervision
- Teaching Integrated Ph.D. courses and PMSc courses
- Various administrative responsibilities

08/2005 – 03/2008

Helmholtz Zentrum Berlin

Berlin, Germany

Marie-Curie Fellow (Post Doctorate)

- Research on Nanostructures, Thin Films, and 2D systems
- Use of Synchrotron Radiation Source

Research Experience

Advanced Functional Materials

- Graphene Growth under Ultra High Vacuum (UHV)
Surface Structure characterization using Scanning Tunneling Microscopy (STM)
Electronic Structure using Angle resolved photoelectron Spectroscopy (ARPES) with synchrotron radiation
Magnetic Properties using Spin Resolved photoelectron Spectroscopy (SRPES) with synchrotron radiation
- Magnetic Shape Memory Alloys Alloy preparation
Composition determination using Energy dispersive X-ray Analysis (EDAX)
Crystal Structure using X-ray Diffraction (XRD, Lab and Synchrotron radiation)
Characteristic temperature determination using Differential scanning calorimetry (DSC)
Magnetic Property analysis using superconducting quantum interference device (SQUID) and Vibrating Sample Magnetometer (VSM)
Transport Property analysis using Four-Probe Technique (FPT)
Magnetotransport Property analysis using FPT with Superconducting Magnet
Electronic Structure using X-ray Photoelectron spectroscopy (XPS) and Density Functional Theory (DFT)

Thin Films

- Metallic Growth under UHV, Molecular beam Epitaxy (MBE)
Surface Structure characterization using Low Energy Electron Diffraction (LEED)
Electronic Structure using XPS (lab source), ARPES and Angle- and Energy-Resolved Photoyield (AERP) with synchrotron radiation

- Quasicrystal Alkali metal growth on i-AlPdMn using SAES getter sources
Electronic Structure using XPS

Nanostructures

- Nano wires Growth under UHV using self assembly
- Nano dots Surface Structure characterization using STM and LEED
Electronic structure using ARPES with synchrotron radiation

Metals and Ion implantation

Low energy ion implantation in single crystals
Surface Structure characterization using LEED
Electronic structure using XPS

Teaching Experience

09/2018 – Present	Institute of Chemical Technology Mumbai-IndiaOil Odisha Campus Level: Integrated M.Tech Course: Crystal Structure, Semiconductor Physics, Ultrasonics	<i>Bhubaneswar, India</i>
08/2015 – 12/2015	Indian Association for the Cultivation of Science Level: Post M.Sc. Course: Electronic Structure and Physics of Material: Section E + Tutorials	<i>Kolkata, India</i>
01/2014 – 05/2014	S. N. Bose National Centre for Basic Sciences Level: M.Sc. Course: Basic laboratory II	<i>Kolkata, India</i>
01/2013 – 05/2013	S. N. Bose National Centre for Basic Sciences Level: Post M.Sc. Course: Electronic Structure and Physics of Material	<i>Kolkata, India</i>
01/2011 – 05/2011	S. N. Bose National Centre for Basic Sciences Level: M.Sc. Course: Project based course	<i>Kolkata, India</i>
01/2010 – 05/2010	S. N. Bose National Centre for Basic Sciences Level: M.Sc. Course: Physics of Materials	<i>Kolkata, India</i>

08/2009 – 12/2009	S. N. Bose National Centre for Basic Sciences Level: M.Sc. Course: Experimental Methods in Physics	<i>Kolkata, India</i>
07/1998 – 09/1998	St. Francis de Sales College Level: B.Sc. Course: Solid state physics, X-ray and Laser	<i>Nagpur, India</i>

Thesis Supervision

Ph.D.

- Awarded 03/2015, Sole Supervisor *Calcutta University, India*
Title: Properties of Ni-Mn based Heusler alloys with martensitic transition
Student Name: Sandeep Singh
- Submitted 07/2018, Main Supervisor *Calcutta University, India*
Title: Electronic structure of Ni-Mn based Heusler alloys
Student Name: Soumyadipta Pal

M.Sc.

- 2011 Sole Supervisor, S. N. Bose National Centre for Basic Sciences, *Kolkata, India*
Title: Growth and characterization of Al thin film on W(110) surface
- 2010 Sole Supervisor, S. N. Bose National Centre for Basic Sciences, *Kolkata, India*
Title: Resistivity Behavior of $\text{Ni}_{2+x}\text{Mn}_{1-x}\text{Ga}$
- 2009 Sole Supervisor, S. N. Bose National Centre for Basic Sciences, *Kolkata, India*
Title: Magnetic properties of $\text{Ni}_{50}\text{Mn}_{36}\text{Sn}_{14}$ Heusler alloy with martensitic Transition

Publication

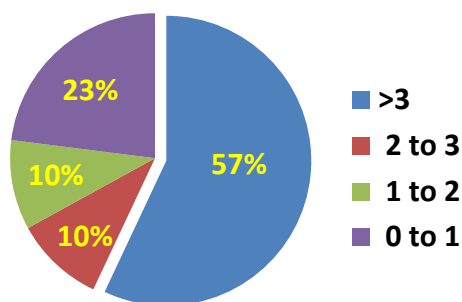
Present Publication Name: Chhayabrita Maji

Previous Publication Name: C. Biswas

Journal

Book:	1
Total journal published:	30
International:	29
National:	1
Total Citation:	1184
Average citation per year:	79
Average citation per paper:	39
Working papers:	5

% Publication with Impact Factor



- 2003
C. Biswas, A. K. Shukla, S. Banik, V. K. Ahire, and S. R. Barman, Plasmons in core-level photoemission spectra of Al(111), *Phys. Rev. B* 67, 165416.
Impact factor: 3.718, Citation: 42

C. Biswas, A. K. Shukla, S. Banik, V. K. Ahire, and S. R. Barman, XPS and LEED study of Argon bombarded Al(111) surface, *Nuclear Instruments and Methods B* 212, 297.
Impact factor: 1.109, Citation: 9
- 2004
C. Biswas, A. K. Shukla, S. Banik, S. R. Barman, and A. Chakrabarti, Argon nano-bubbles in Al(111): a photoemission study, *Phys. Rev. Lett.* 92, 115506.
Impact factor: 8.462, Citation: 22

S. R. Barman, C. Biswas, and K. Horn, Electronic excitations on silver surfaces, *Phys. Rev. B* 69, 045413.
Impact factor: 3.718, Citation: 17

S. R. Barman, C. Biswas, and K. Horn, Collective excitations on silver surfaces by photoyield, *Surface Science*, 566-568, 538.
Impact factor: 2.062, Citation: 12

A. K. Shukla, S. Banik, R. S. Dhaka, C. Biswas, S. R. Barman, and H. Haak, Versatile UHV compatible Knudsen type effusion cell, *Rev. Sci. Instrum.* 75, 4467.
Impact factor: 1.515, Citation: 20
- 2005
C. Biswas, R. Rawat, and S. R. Barman, Large negative magnetoresistance in a ferromagnetic shape memory alloy: Ni_{2+x}Mn_{1-x}Ga, *Appl. Phys. Lett.* 86, 202508.
Impact factor: 3.411, Citation: 128

- A. Chakrabarti, C. Biswas, S. Banik, R. S. Dhaka, A. K. Shukla, S. R. Barman, Influence of Ni doping on the electronic structure of Ni₂MnGa, *Phys. Rev. B* **72**, 073103.
Impact factor: 3.718, Citation: 76
- 2006

A. Varykhalov, C. Biswas, W. Gudat, and O. Rader, Fabrication of patterned Au films as supporting templates for one-dimensional magnetic nanostructures, *Phys. Rev. B* **74**, 195420.
Impact factor: 3.718, Citation: 6

A. K. Shukla, R. S. Dhaka, C. Biswas, S. Banik, S. R. Barman, K. Horn, Ph. Ebert, and K. Urban, Growth and electronic structure of alkali metal adlayers on icosahedral Al_{70.5}Pd₂₁Mn_{8.5}, *Phys. Rev. B* **73**, 054432.
Impact factor: 3.718, Citation: 14

C. Biswas and S. R. Barman, X-ray photoelectron spectroscopy study of sputter-annealed Ni_{2.1}Mn_{0.9}Ga surface, *Appl. Surface Science*, **252**, 3380.
Impact factor: 3.387, Citation: 11

C. Biswas, S. Banik, A.K. Shukla, R. S. Dhaka, V. Ganesan, and S. R. Barman, Surface composition and electronic structure of Ni_{2+x}Mn_{1-x}Ga studied by x-ray photoelectron spectroscopy, *Surface Science*, **600**, 3749.
Impact factor: 2.062, Citation: 6
 - 2007

C. Biswas, R. S. Dhaka, A. K. Shukla, and S. R. Barman, Growth and electronic structure of Mn on Al(111), *Surface Science* **601**, 609.
Impact factor: 2.062, Citation: 10

A. Varykhalov, D. Usachov, C. Biswas, W. Gudat, and O.Rader, Low-dimensional structures on carbon-terminated W(110): from metallic nanowires to molecular chains, *Journal of Physics:conference series*, **61**, 1221.
 - 2008

A.Varykhalov, J.Sanchez-Barriga, A. M. Shikin, C. Biswas, E. Vescovo, O.Rader, Electronic and magnetic properties of quasi-freestanding graphene on Ni, *Phys. Rev. Lett.* **101**, 157601.
Impact factor: 8.462, Citation: 583

A.K. Shukla, C.Biswas, R. S. Dhaka, S. C. Das, P. Krüger, and S. R. Barman, Influence of sp-d hybridization on the electronic structure of Al-Mn alloys, *Phys. Rev. B* **77**, 195103.
Impact factor: 3.718, Citation: 14

R. S. Dhaka , C.Biswas, A. K. Shukla, S. R. Barman, A. Chakrabarti, Xe and Ar nanobubbles in Al studied by photoemission spectroscopy, *Phys. Rev. B* **77**, 104119.
Impact factor: 3.718, Citation: 19

- 2010 A.G. Rybkin, A.M. Shikin, and V.K. Adamchuk, D. Marchenko, C. Biswas, A. Varykhalov and O. Rader, Large spin-orbit splitting in light quantum films: Al/W(110), *Phys. Rev. B* 82, 233403.
Impact factor: 3.718, Citation: 21

- 2011 Sandeep Singh and C.Biswas*, Magnetoresistance origin in martensitic and austenitic phase of $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$, *Appl. Phys. Letts.* 98, 212101.
Impact factor: 3.411, Citation: 23

Sandeep Singh and C.Biswas*, Disorder induced resistivity changes in $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$, *AIP Conf. Proc* 1349, 1005.
Citation: 1

Sandeep Singh, Ganesh Adhikary, D. Biswas, Kalobaran Maiti and C. Biswas*, Electronic structure modification of $\text{Ni}_2\text{Mn}_{1.4}\text{Sn}_{0.6}$ upon martensitic phase transition, *AIP Conf. Proc* 1349, 849.
Citation: 1

- 2012 Chhayabrita Biswas, Electronic structure of metals and intermetallics: Photoelectron spectroscopy, Lap Lambert Academic Publishing, Germany, *ISBN: 978-3-659-12266-8*

- 2014 Sandeep Singh, Soumyadipta Pal, C. Biswas*, Disorder induced resistivity anomaly in $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$, *Journal of Alloys and Compounds* 616, 110.
Impact factor: 3.133, Citation: 4

Sandeep Singh, Illya Glavatskyy, C. Biswas*, Field-cooled and zero-field cooled magnetoresistance behavior of $\text{Ni}_2\text{Mn}_{1+x}\text{In}_{1-x}$ alloys, *Journal of Alloys and Compounds* 615, 994.
Impact factor: 3.133, Citation: 4

Sandeep Singh, Illya Glavatskyy, C. Biswas*, The influence of quench atomic disorder on the magnetocaloric properties of Ni–Co–Mn–In alloys, *Journal of Alloys and Compounds* 601, 108–111.
Impact factor: 3.133, Citation: 8

M. Maniraj, S.W.D’Souza, Sandeep Singh, C. Biswas, S. Majumdar, S.R. Barman, Inverse photoemission and photoemission spectroscopic studies on sputter-annealed Ni–Mn–Sn and Ni–Mn–In surfaces, *Journal of Electron Spectroscopy and Related Phenomena* 197, 106.
Impact factor: 1.661, Citation: 4

Soumyadipta Pal, Priya Mahadevan and C. Biswas*, Role of excess Mn for martensitic transformation in $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$: Ab initio approach, *AIP Conf. Proc* 1591, 58.

Citation: 2

- 2015 Soumyadipta Pal, Priya Mahadevan and C. Biswas*, Site occupancy trend of Co In Ni_2MnIn : Ab initio Approach, *AIP Conf. Proc*, 1665, 090020.
Citation: 1
- 2016 Soumyadipta Pal, Sagar Sarkar, S. K. Pandey, Chhayabrita Maji, and Priya Mahadevan, Driving force for martensitic transformation in $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$, *Phys. Rev. B* 94, 115143.
Impact factor: 3.718, Citation: 1
- 2017 Chhayabrita Maji*, Properties of Magnetic Shape Memory Alloys in martensitic phase, *Invited article, Current Science* 112, 1390.
Impact factor: 0.843, Citation: 0

Sandeep Singh, Ganesh Adhikary, D. Biswas, Kalobaran Maiti and Chhayabrita Maji*, Electronic structure of $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$ as a function of composition, *AIP Conf. Proc*, 1832, 090008.

Citation: 1

- Working Soumyadipta Pal, Chhayabrita Maji, and Priya Mahadevan, Band Jahn-Teller effect in Ni_2MnGa : What drives it?, *Phys. Rev. B*, resubmitted.

Sandeep Singh and Chhayabrita Maji*, Cause of larger shift in martensitic transition of $\text{Ni}_2\text{Mn}_{1+x}\text{In}_{1-x}$ magnetic shape memory alloys, *J. Appl. Phys.*, Modified for resubmission.

Soumyadipta Pal, Sandeep Singh, and Chhayabrita Maji*, Effect of co-existing crystal structures on magnetic properties of $\text{Ni}_2\text{Mn}_{1+x}\text{Sn}_{1-x}$ magnetic shape memory alloy, *Appl. Phys. Letts.*, Modified for resubmission.

Soumyadipta Pal, Sandeep Singh, Priya Mahadevan, Ganesh Adhikari, Kalobaran Maity, and Chhayabrita Maji*, Experimental manifestation of origin of martensitic transition in Ni-Mn based Heusler alloys, *Phys. Rev B*, Manuscript under preparation

Sandeep Singh, M.Maniraj, S.R. Barman, and Chhayabrita Maji*, Surface characterization of Ni- Mn-In by sputtering and annealing, *Appl. Surf. Sci.*, Manuscript Under preparation

Conference/Workshop/Meeting

Total : 38
International : 23
National : 15

Important Conferences : European Conference on Surface Science (ECOSS)
International Vacuum Congress (IVC)
International Conference on Nanoscience and Technology (ICN+T)
International Congress on Surface Science (ICSS)
International Conference on Ferromagnetic Shape Memory Alloys (ICFSMA)
International Conference on Vacuum Ultraviolet Radiation Physics (VUV)

Invited talks : 8
Other talks : 15

Sponsored Project

- 09/2016 – 09/2018 *Principal Investigator*, Moulding of two advanced materials for technical applications, SR/WOS-A/PM-11/2016, Department of Science and Technology, Rs. 21.8 lakhs.
- 08/2008 – 08/2013 *Principal Investigator*, Electronic structure investigation of organic and metallic interfaces and surfaces, SNB/CB/08-09/08, S.N.Bose National Centre for Basic Sciences, Rs. 56.6 lakhs.

Conference Organization

- 2017 *Organizing committee member*, Emerging Trends in the Physics of Surfaces, Interfaces and Nanostructures, 24th – 25th November, Kolkata, India.
- 2016 *Organizing committee member*, Discussion Meeting on Nano-scale and Atomic-scale Quantum Structures and Devices, 16th – 17th February, Kolkata, India.
- 2012 *Organizing committee member*, C. K. Majumdar Memorial Summer Workshop in Physics, 18th – 27th June, Kolkata, India.

- 2009 **Co-Convener**, International conference on Magnetism, Superconductivity and Phase Transitions in Novel and Complex Materials: MSM09, 11th – 14th November, Kolkata, India.
- 2009 **Organizing committee member**, Meeting on Physics and Chemistry of Oxide Materials, 23rd - 26th February, Kolkata, India.

Administrative Responsibilities

2019 – Present	Vice-President , Technological Association, Institute of Chemical Technology Mumbai-IndiaOil Odisha Campus
2019 – Present	Member , Safety Committee, Institute of Chemical Technology Mumbai-IndiaOil Odisha Campus
2019 – Present	Member , Hostel Committee, Institute of Chemical Technology Mumbai-IndiaOil Odisha Campus
2011 - 2014	Member , Student Advisory Committee, S.N. Bose National Centre for Basic Sciences
2009 – 2014	Member , Official Language Implementation Committee, S.N. Bose National Centre for Basic Sciences
2009 – 2014	Member , Editorial Board, S. N. Bose Newsletter, S.N. Bose National Centre for Basic Sciences
2009 – 2014	Member , Jury Board, S. N. Bose Newsletter, S.N. Bose National Centre for Basic Sciences
2008 – 2014	Member , Technical Cell, S.N. Bose National Centre for Basic Sciences
2008 – 2014	Member , Various Thesis and Interview committees, S.N. Bose National Centre for Basic Sciences

Awards and Recognitions

- 2018 *Life-time member*, Electron Microscopy Society of India *India*
- 2016 *Woman Scientist Fellowship*, Department of Science and Technology *India*
- 2015 *Life-time member*, Material Research Society of India *India*
- 2008 *S.N. Bose Fellowship*, S.N. Bose National Centre for Basic Sciences *India*
- 2005 *Marie Curie Fellowship*, Marie Skłodowska-Curie Actions,
European Commission *Germany*
- 2001 *Senior Research Fellowship*, UGC-DAE-CSR, Indore *India*
- 1998 *Research Assistant Scholarship*, UGC-DAE-CSR, Indore *India*
- 1997 *Summer Intern Scholarship* (MSc), UGC-DAE-CSR, Indore *India*

Laboratory Development

Ultra High Vacuum (UHV) facility

- Photoelectron spectrometer using laboratory source (XPS and UPS) and Hemispherical analyser (Specs).
- Design of UHV experimental chamber for Inverse photoelectron spectroscopy.
- GM Detector and gas handling manifold for Inverse photoelectron spectroscopy.
- Knudsen-cell for controlled growth of magnetic thin films.
- UHV Sample Holder with controlled heating and cooling facility and polar rotation.
- Titanium Sublimation Pump with LN₂ shroud.

Referee

apl. Prof. Dr. Oliver Rader

Head of the Department
Helmholtz Zentrum Berlin
Albert Einstein Straße 15
12489 Berlin, Germany

Phone: +49 30 8062 12950
E-mail: rader@helmholtz-berlin.de
Fax: +49 30 8062 14980

Prof. Karsten Horn

Department of Physical Chemistry
Building: D/1st floor, room 1.06
Fritz-Haber-Institut der Max-Planck-Gesellschaft
Faradayweg 4–6
14195 Berlin, Germany

Phone: +49 30 8413 5640
+49 172 812 8025
E-mail: horn@fhi-berlin.mpg.de
Fax: +49 30 8413 5603

Prof. Bhupendra Nath Dev

Retired Senior Professor (IACS, Kolkata)
Visiting Professor
Department of Physics
IIT Kharagpur
Kharagpur, India – 721302

Phone: +91 8961078105 / 9433847131
E-mail: bhupen.dev@gmail.com
bhupen.dev@phy.iitkgp.ernet.in

Dr. S. R. Barman

Scientist- G
UGC-DAE Consortium for Scientific Research
University Campus
Khandwa Road
Indore 452017 Madhya Pradesh, India

Phone: +91 731 2463913 / 9826336110
E-mail: barmansr@gmail.com
Fax: +91 731 2465437