

Bio-data of Dr. Madhusudan Jana

1. Name (Block letters) : **DR. MADHUSUDAN JANA**

2. Designation: **Associate Professor**

3. Name of the Department : **PHYSICS**

4. **E-mail: madhujana@rediffmail.com**



5. Educational Qualification (Graduation onwards):

Examination	Name of the University	Year of passing
B.Sc	V.U.	1994
M.Sc	V.U.	1996
GATE	IIT	1996
SLET	W.B.C.S.C.	1997

6. Research Degree(s):

Degree	Name of the University	Date of Award	Title
Ph.D.	J.U. #	18.09.2002	Microcrystalline Si:H thin films: Preparation and Characterization

Research work has been done at Indian Association for the Cultivation of Science, Jadavpur, Kolkata – 700032, INDIA

7. **Teaching Experience:** 20 years at UG level and 5 years at PG level

8. Specialization/Expertise/Teaching Area: Solid State Physics , Experimental Physics, Digital Electronics, Optics , Quantum Mechanics and Statistical Mechanics

9. **Courses Taught:** B.Sc. Hons, B.Sc. Gen, B.Sc. GE, PG as visiting faculty

10. **Publications and others:**

A] Book Published

1. **STATISTICAL MECHANICS:** ISBN- 9788184873632 : **NAROSA Publishing House (New Delhi) (First publication -2014).**
2. **STATISTICAL MECHANICS:** ISBN-9781842659113 : **Alpha Science International Pvt. Ltd. (U.K.) (First publication -2015).**

3. **Hazards Associated with Lifestyle Enrichment: A collection of articles:** ISBN – 9783659921568 : Lambert Academic Publishing (Germany) : **Madhusudan Jana** and Amala Jana– 2016
4. **Essential Physics -11:** ISBN – 9789386911179: D.Jana, S.K. Bera, **Madhusudan Jana** and S. Pal: Santra Publication Pvt. Ltd. 2018
5. **FUNDAMENTALS OF QUANTUM MECHANICS:** ISBN - 978-81-8487-653-6 : **NAROSA Publishing House (New Delhi) (First publication -2019).**
6. **FUNDAMENTALS OF QUANTUM MECHANICS:** ISBN - 978-1783324057 : **Alpha Science International Pvt. Ltd. (U.K.) (First publication -2019).**
7. **LABORATORY MANUAL OF PHYSICS:** ISBN- 978-81-947059-0-1 : BOOKS & ALLIED (P) Ltd. (Kolkata) : **Vol. –I** (First Publication -2020)

B] Research Papers in International/National Journals

1. Control of crystallization at a low thickness in $\mu\text{c-Si:H}$ films using layer-by-layer growth scheme: **Madhusudan Jana**, Debajyoti Das, S. T. Kshirsagar and A. K. Barua : Jpn. J. Appl. Phys. : **38** (1999) L1087.
2. Characterization of undoped $\mu\text{c-SiO:H}$ films prepared from ($\text{SiH}_4 + \text{CO}_2 + \text{H}_2$)-plasma in RF glow discharge: Debajyoti Das, **Madhusudan Jana** and A. K. Barua : Solar Energy Materials & Solar Cells: **63** (2000) 285
3. Heterogeneity in Microcrystalline-transition-state: Origin of Si-nucleation and Microcrystallization at Higher RF Power from Ar-diluted SiH_4 Plasma : Debajyoti Das, **Madhusudan Jana** and A. K. Barua: J. Appl. Phys: **89** (2001)3041
4. Promotion of microcrystallization by argon in moderately hydrogen diluted silane plasma: **Madhusudan Jana**, Debajyoti Das and A. K. Barua : Solar Energy Materials & Solar Cells: **74** (2002) 407
5. Preparation of undoped and phosphorus doped $\mu\text{c-Si:H}$ films: Effect of extended period of hydrogen plasma annealing in interrupted growth : **Madhusudan Jana**, Debajyoti Das and A.K. Barua: Indian J. Appl. Phys. **76A** (2002) 135

6. Role of hydrogen in controlling the growth of $\mu\text{c-Si:H}$ films from Argon diluted SiH_4 -plasma: **Madhusudan Jana**, Debajyoti Das and A. K. Barua: J. Appl. Phys. **91** (2002) 5442
7. Correlation of electrical, thermal and structural properties of microcrystalline silicon thin films: D.Das, **Madhusudan Jana**, A.K.Barua, S.Chattopadhyay, L.C.Chen and K.H.Chen: Jpn. J. Appl. Phys. **41** (2002) L229
8. Microcrystallization in Si:H : the effect of gas pressure in Ar-diluted SiH_4 -plasma: **Madhusudan Jana** and Debajyoti Das: Solar Energy Materials & Solar Cells: **79** (2003) 519
9. Microcrystallization and/or columnar growth at Si:H network induced by Ar-dilution to the SiH_4 plasma in rf glow discharge : **Madhusudan Jana** and Debajyoti Das : Indian J. Appl. Phys: **77A(5)** (2003) 433
10. P-doped mc- Si:H films at a very low thickness and high deposition rate: Suitable for application in solar cells: Debajyoti Das and **Madhusudan Jana**: J. Mater. Res. **18** (2003) 2371
11. Hydrogen plasma induced microcrystallization in Layer-by-Layer growth scheme : Debajyoti Das and **Madhusudan Jana** : Solar Energy Materials & Solar Cells: **81** (2004) 169
12. Development of highly conducting p-type $\mu\text{c-Si:H}$ films from minor diborane doping in highly hydrogenated SiH_4 plasma : Debajyoti Das and **Madhusudan Jana** : Materials letter: **58** (2004) 980
13. Hazards of nanoparticles and nanotechnology: Need for a general awareness: **Madhusudan Jana**: Breakthrough: 15 (2012) 11 ; ISSN-09742433
14. Hazards of electromagnetic radiation: **Madhusudan Jana**: Breakthrough: 16 (2013) 11 ; ISSN-09742433
15. Story of Atomic Models : A tribute to Niels Bohr on the occasion of centenary of his model :**Madhusudan Jana**: Breakthrough: 17 (2014) 11 ; ISSN-09742433
16. Tarhit Chumbakeeya Bikiran: Ekti Nishabda Ghatak: **Madhusudan Jana**: Prakiti: 11 (2014) 04 ; ISSN-09742425

17. LED as Present Day Lighting Device :**Madhusudan Jana**: Breakthrough: 18 (2016) 11 ; ISSN-09742433
18. Dark and Bright Sides of LED Lighting: **Madhusudan Jana**: IJMAR-Indian Journal of Multidisciplinary Academic Research: 5 (2018)2 ; ISSN 2347-9884
19. Global Warming: A Threat to Living Creatures: **Madhusudan Jana**: Breakthrough: 21 (June 2019) 40 ; ISSN-09742433
20. To study the variation of optical rotation with temperature and to verify Garnez theorem: **Madhusudan Jana**: Universal Review: VIII(V) (May 2019) ; ISSN-22772723: IF 5.7

C] Conference papers:

a) International conference:

1. Development of undoped and boron doped hydrogenated microcrystalline silicon oxide thin films : Debajyoti Das, **Madhusudan Jana** and A. K. Barua : Technical Digest of 11th Intl. Photovoltaic Science and Engineering Conference; September 1999, Hokkaido, Japan: pp 409.
2. Fast Deposition of $\mu\text{c-Si:H}$ films from Ar-diluted SiH_4 plasma in RF glow discharge: Debajyoti Das, **Madhusudan Jana** and A. K. Barua : Proceedings of the 28th IEEE Specialist Photovoltaic Conference, September 2000, Anchorage, Alaska.
3. Promotion of microcrystallization by argon in moderately hydrogen diluted silane plasma: **Madhusudan Jana**, Debajyoti Das and A. K. Barua : Technical Digest of 12th Intl. Photovoltaic Science and Engineering Conference held in June, 2001, at Cheju Island, Korea, pp 427
4. High rate growth of highly conducting n-type $\mu\text{c-Si:H}$ films involving argon as a diluent : **Madhusudan Jana**, Debajyoti Das and A. K. Barua : Accepted for the presentation at the 17th European Photovoltaic Solar Energy Conference and Exhibition; to be held on 22nd -26th October, 2001 at Munich, Germany.
5. Fabrication of high efficiency double junction a-Si solar cells using n- $\mu\text{c-Si:H}$ layers prepared at high deposition rate : A. K. Barua, **Madhusudan Jana**, Debajyoti Das and Arindam Sarker

: Accepted for the presentation at the 17th European Photovoltaic Solar Energy Conference and Exhibition; to be held on 22nd -26th October, 2001 at Munich, Germany.

6. Growth and Characterization of Undoped and Phosphorus Doped $\mu\text{c-Si:H}$ Films by Argon Assisted Hydrogen Dilution in RF PECVD: **Madhusudan Jana**, Debajyoti Das and A. K. Barua: Accepted for the presentation at the 11th International Workshop on the Physics of Semiconductor Devices to be held on 11th - 15th December 2001, at IIT, New Delhi.

b) National conference:

1. Highly conducting undoped $\mu\text{c-Si:H}$ films prepared by interrupted growth and H-plasma treatment : **Madhusudan Jana**, Debajyoti Das and A. K. Barua : Proc. of MRSI 10th AGM, Feb. 8-10, 1999, Bhopal, India: pp 58.
2. Electrical properties of $\mu\text{c-Si:H}$ films prepared by Layer by Layer Growth and H-plasma exposure: Debajyoti Das, **Madhusudan Jana** and A. K. Barua : Proceedings of the 88th ISCA, January 2001, New Delhi, India: pp 4
3. Ar induced microcrystallization of silicon films from SiH_4 -plasma: **Madhusudan Jana** and Debajyoti Das : Proceedings of the 88th ISCA(Yong Scientist Program), January 2001, New Delhi, India: pp 47
4. Growth of $\mu\text{c-Si:H}$ Network from Ar-assisted Plasma in PECVD: **Madhusudan Jana**, Debajyoti Das and A. K. Barua : Proce. of MRSI 12th AGM; 31st Jan-2nd Feb, 2001, Kolkata, India: pp 117
5. Induced Microcrystallization in Si from Ar^* - and Atomic-H Assisted Glow Discharge Plasma: Debajyoti Das and **Madhusudan Jana**: ; Proceedings of the Conference of Physical Society of the Republic of China, February 12-14, 2001; Taipei, Taiwan; pp.60
6. Effect of chamber pressure on the formation of undoped microcrystalline silicon thin films deposited from Ar-diluted SiH_4 -plasma: **Madhusudan Jana**, Debajyoti Das and A. K. Barua: Proceedings of the IVSNS-2001, September 5 - 7, 2001, at IISc, Bangalore; pp.126

7. Highly Conducting n-type $\mu\text{-Si:H}$ Films at an Enhanced Deposition Rate from Ar-assisted ($\text{SiH}_4 + \text{H}_2 + \text{PH}_3$)-plasma in RF Glow Discharge: **Madhusudan Jana** and A. K. Barua: National Seminar on Optical and Electronic properties of Novel Materials, April 5-7, 2002, Vidyasagar University, Paschim Medinipur. pp33
8. A Brief overview of Nano-materials, Quantum Dots and Nanotubes: **Madhusudan Jana**: UGC Sponsored two-day state level seminar on Recent Advances in Material Science and Nanotechnology, January 20-21, 2012, Tamralipta Mahavidyalaya, Purba Medinipur. Pp22
9. Variety of Intermolecular Interactions exhibited in Solid State X-ray Crystal Structures: **Madhusudan Jana**: UGC Sponsored National seminar on ‘The Importance of Intermolecular Interactions in Solid State X-ray Crystal Structures’ September, 7-8, 2015, Mugberia Gangadhar Mahavidyalaya, Purba Medinipur. Pp34.
10. Destructive Effect of Artificial Lighting for Wetland Habitants: Need of Eco-friendly Lighting: **Madhusudan Jana**: “UGC sponsored national Seminar on Wetland Bio-Resource Management: Problems and Prospects” February 26-27, 2016, Tamralipta Mahavidyalaya, Pruba Medinipur. Pp 49.

D] CONFERENCE/SYMPOSIUM ATTENDED

INTERNATIONAL

17 th European Photovoltaic Solar Energy Conference And Exhibition	22 nd – 26 th October, 2001 Munich, Germany	Dept. Of Science and Technology (DST), and Council of Scientific and Industrial Research (CSIR)
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National

Sl.No.	Name of The Conference/Symposium	Date and Venue	Finance Supported By
1	88 th Indian Science Congress	3 rd -7 th January,2001, New Delhi, India	Indian Science Congress Association

2	12 th Agm Of Material Research Society Of India	31 st Jan-2 nd Feb, 2001, Kolkata, India	Indian Association For The Cultivation Of Science
3	National Seminar on Recent Trends in Plasma Research	21 st – 22 nd April, 2001, Jadavpur University	-----
4	Indian Vacuum Society National Symposium	5 th – 7 th Sept, 2001. Iisc, Bangalore, India	Indian Association for The Cultivation Of Science
5	National Seminar On Optical And Electronic Prop. Of Novel Materials	April 5 –7, 2002, Vidyasagar University, West Bengal	-----
6	Workshop on Solar Photovoltaics: Technologies And Systems	June 3 – 4, 2002, Indian Association For The Cultivation Of Science	-----
7	IAPT-Infosys Workshop For UG Physics Teachers	December 18-23, 2004, Midnapore College, West Bengal	Infosys Foundation
8	State Level Conference On The Outstanding Work Of Acharya Jagadish Chandra Bose- Past and Present Scenario	March 11-12, 2005, Mahishadal Raj College, West Bengal	-----
9	National Level Wrkshop on Intellectual Property Rights	August 30, 2006, Midnapore College, Midnapore, West Bengal.	-----
10	C. K. Majumder Memorial Summer Workshop on Experimental Physics	May 25 – June 01, 2008, Midnapore college, Midnapore, West Bengal.	IAPT, RC -05

11	Workshop on Physics (Hons) Practical Syllabus	Jan 10-11, 2009, V.U., Midnapore, West Bengal	-----
12.	National Level Conference on 50 Years of Laser: Future Perspectives	Jan 8-9, 2012 Contai P.K. College, Purba Medinipur	-----
13.	UGC Sponsored Two- Day State Level Seminar on Recent Advances in Material Science and Nanotechnology	January 20-21, 2012, Tamralipta Mahavidyalaya, Purba Medinipur.	-----
14	UGC sponsored National Seminar on ‘the Importance of Intermolecular Interactions in solid state X-ray Crystal Structures	September, 7-8, 2015, Mugberia Gangadhar Mahavidyalaya, Purba Medinipur.	-----
15	UGC sponsored national Seminar on Wetland Bio- Resource Management: Problems and Prospects	February 26-27, 2016, Tamralipta Mahavidyalaya, Purba Medinipur	-----

E. Invited Lecture/Presentation Delivered in Public Seminars:

1. *“Is our Earth ended on 21st Day of December, 2012 ?????”* : 21 December, 2012: at Milan Mela Mancha, Tamluk Rakhil Memorial Stadium ;Organized jointly by Tamluk Science Society and Milan Mela Committee; the programme is live- telecasted by local Cable Network .

2. **“Comet ISON”** :27th Novenber, 2013: at Birendra Roy K.G. School Premises, Rajabazar, Tamluk: organized by Tamluk Science Society.
3. **“Life and work of Professor Sushil Kumar Mukherjee”**: 22 December, 2013: at Bartly Bart High School, Panskura ;Organized by Panskura Science Society.
4. **“Inspiring works of Professor Sushil Kumar Mukherjee”**: 19 January, 2014: at Chanswarpur High School, Panskura on the occasion of Centenay of the School;Organized by the School authority .
5. **“Global Warming and Non-conventional Energy Sources”** : 5th June, 2014 on the occasion of World Environment Day : at Daharpur Tapashili High School (H.S.): Organized jointly by the School and Tamluk Science Society.
6. **“Educational Thoughts of Swami Vivekananda”**: 12th January, 2015 on the occasion of His birth Day: at Birendra Roy K.G. School Premises, Rajabazar, Tamluk: organized by Birendra Roy K.G. School.
7. **“Life and work of Bruno”** :28th February, 2016 in the occasion of Science Day: at Birendra Roy K.G. School Premises, Rajabazar, Tamluk: organized by Tamluk Science Society.
8. **“Global Warming and Our Duties”** : 5th June, 2016 on the occasion of World Environment Day : at Daharpur Tapashili High School (H.S.): Organized jointly by the School and Tamluk Science Society.
9. **“Cosmology Explaining The Universe”**: 18th December, 2016 on the occasion of 150th birth anniversary of Madam Curie : at Panskura organized by Panskura Science Society.
10. **“Digital Financial Transaction: A journey towards Less-Cash and Green Economy”**: 27th January, 2017 in a Seminar under central Govt. Scheme VISAKA appealed by MHRD, organized by NSS and NCC units of Tamralipta Mahavidyalaya.
11. **“Career Options After Graduation”** : 03rd February, 2017 at Tamralipta Mahavidyalaya at a workshop on Career Counselling organized by Career Counselling Cell of the College.
12. **“Life and Work of Madam Marie Curie”** : 19th March, 2017 on the occasion of 150th Birth Anniversary: at Daharpur Tapashili High School (H.S.): Organized jointly by the School and Tamluk Science Society.
13. **“Life and Work of Madam Marie Curie”** : ~~19th March, 2017~~ on the occasion of 150th Birth Anniversary: at ~~Daharpur Tapashili~~ High School (H.S), Ramtarakhat

14. ***“Cosmology Explaining The Universe”***: 12th January, 2018 at Dubrajpur H.S. School, Nandakumar.
15. ***Solar System and Eclipse: 31st January, 2018***: Vidyasagar Free Coaching Centre near District Library, Tamluk, organized by Tamluk Science Society.
16. ***“Career Options After Graduation”*** : 16th February, 2018 at Tamralipta Mahavidyalaya at a workshop on Career Counselling organized by Career Counselling Cell of the College.
17. ***Pollution from Plastic: 5th June, 2019***: Vidyasagar Free Coaching Centre near District Library, Tamluk, organized by Tamluk Science Society.
18. ***Solar Eclipse and Solar System***: December 18, 2019 at Bhimacharan High School, Nimtouri, Tamluk organized by Tamluk Science Society.
19. ***Ring of Fire; Solar System and Eclipse***: December 23, 2019 at Tamralipta Mahavidyalaya, organized by IQAC, Tamralipta Mahavidyalaya.
20. ***Celebration of Netaji’s 125th Birth anniversary***: acting as president of Tamralipta Committee; 17th Jan, 2021 delivered lecture on role of teacher on character making of a student in the light of Benimadhab Das and Subhas Chandra Bose, at Vidyasagar Kristi Sammilani, Tamluk.
21. ***Celebration of Netaji’s 125th Birth anniversary***: acting as president of Tamralipta Committee; 23rd Jan, 2021 delivered lecture on Subhas Chandra Bose;s vision on secularism, at Vidyasagar Kristi Sammilani, Tamluk.
22. ***Celebration of Netaji’s 125th Birth anniversary***: acting as president of Tamralipta Committee; 11 April, 2021 delivered lecture on Subhas Chandra Bose;s Arrival in Tamluk, held at Rajabazar, Tamluk.
23. ***Celebration of Madam Curie’s Death anniversary***: Delivered lecture on Madam Curie’s Work and Idealism through Google Meet and Facebook live Streaming, Organized by P.C. Roy Science Society, Moyna.

24. *Celebration of Netaji's 125th Birth anniversary*: acting as president of Tamralipta Committee; 11 July, 2021 delivered lecture on Subhas Chandra Bose;s Resignation of IACS through Google Meet and Facebook live Streaming.
25. *Celebration of Netaji's 125th Birth anniversary*: acting as president of Tamralipta Committee; 16 July, 2021 delivered lecture on Subhas Chandra Bose;s Resignation of IACS at Tamluk Municipality office area. The program is covered by many print and electronic media like RCBS, News Time and Anandabazar Patrika.

F. RC/OP Completed:

1. Orientation Programm : 03-30th November, 2003 at Vidyasagar University
2. Academic Staff College Refresher Course: September 1-20, 2008 at Calcutta University.
3. Academic Staff College Refresher Course: July 5-24, 2010 at Calcutta University.
4. Academic Staff College Refresher Course: March 8-31, 2016 at Calcutta University.

G: Articles published in local Magazines:

1. *'Swapner Thikana'* –Ruchira 2002, Tamralipta Mahavidyalaya
2. *'Chandini Rate, Chandipurer Tate'*, - Ruchira 2004, Tamralipta Mahavidyalaya
3. *'Rabindranather Bignan Bhabna'*, -Ruchira 2011, Tamralipta Mahavidyalaya
4. *'Man Yayabar'*-Smaranika,14th Biannual District Convention of WBCUTA, 2014
5. *'Amer Pasara'*- Sishu Utsab Sankalan, 2014
6. *'Haradhan Daroyan'* - Sishu Utsab Sankalan, 2015
7. *'Murti Tatwaer Prekshapate Bangalir Durgotsaber Tatparya'* Namastasyai, 2015
8. *'Murti Tatwaer Prekshapate Bangalir Durgotsaber Tatparya'* Ruchira 2015, Tamralipta Mahavidyalaya

9. *'WhatsApp Jay'* - Sishu Utsab Sankalan, 2016
 10. *"Jarhatwer Sadhana ki Chetanar Sandhyan Dite Pare"* : Namastasyai, 2016
 11. *Melay Meshe Utsaber Deshe*: Tamralipta Krishi, Janaswashtha O Kuthir Shilpa Mela 2016
 12. *"Adhmatik Sadhanar Prooyojoniata"* : Biplabtirtha- 2017
 13. *"Mahabiswer Mahakashe"*- CHRAIBETI: Smile -2017
 14. *"Amar Devi"* : Namastasyai, 2017
 15. *"Bilambita Padonnatir Brhambana"* -Smaranika,15th Biannual District Convention of WBCUTA, 2017
 16. *Nay na Dash*: - Sishu Utsab Sankalan, 2017
 17. *Madam Courier Sardhshata Janmabarshe shradharghya*: CHRAIBETI: Smile -2018
 18. *Madam Courier Sardhshata Janmabarshe shradharghya*: Ruchira -2018
 19. *Madam Courie: Ek Mahiyashi Bignanir Jeeban Katha*: Biplabtirtha -2018
 20. *Corona Kale Parthanar Bibartan*: Namastasyai, 2020
 21. *Sabujdwiper pantare* : Namastasyai, 2020
11. **Membership of Reputed Bodies:** Life member of Indian Association of Physics Teachers – L4225