Dy Director (R & D), Dr K C Patel R & D Center

CURRICULUM VITAE

NAME Tapas Kumar Chaudhuri

DESIGNATION Deputy Director (R & D)

INSTITUTION Dr. K C Patel Research and Development Centre
Education Campus – Changa
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SPECIALIZATION Physics (Thin Films and Nanostructures)

ACADEMIC QUALIFICATIONS

Ph.D.	Indian Institute of Technology (IIT), Kharagpur	1986	**Physics** (Solid State Physics / Semiconductor thin films)
Ph.D. Thesis: *Preparation and characterization of PbS thin films for non-silver photography and Solar energy conversion (1984)*			
M.Sc.	Ravishankar University, Raipur	1975	**Physics** (Spl. Solid State Physics) [1st Class]
B.Sc.	Birla Institute of Technology & Science (BITS), Pilani, Rajasthan	1973	**Physical Sciences** [1st Class]

PROFESSIONAL EXPERIENCE

Over 23 years R & D experience in various national and international organizations as mentioned below:

Present

Dr. K C Patel Research and Development Centre **15 May 2006 onwards**
Education Campus Changa
Deputy Director (R & D)

International

National Renewable Energy Laboratory, Colorado, USA **Sep 2003 – Mar 2006**
Research Scientist, Basic Science Center

Tomas Bata University in Zlin, Czech Republic **Aug 2002 – Oct 2002**
Visiting Scientist, Polymer Centre

National

Charotar Institute of Computer Applications, Changa **Nov 2002 – Aug 2003**
Interim Principal

Sardar Patel Renewable Energy Research Institute **Oct 1994 – Jul 2002**
Vallabh Vidyanagar
Chief Scientific Officer, Solar Energy Division

MECON (India) Ltd., Ranchi, India **Sep 1990 – Sep 1994**
Senior Design Engineer, R & D Division

Indian Institute of Technology, Kharagpur **Oct 1998 – Aug 1990**
Senior Scientist, Department of Physics and
Meteorology

Indian Institute of Technology, Kharagpur **Jun 1985 – Sep 1987**
Junior Scientist, Dept. of Physics & Meteorology

National Physical Laboratory, New Delhi, India **Apr 1983 – Nov 1984**
Scientist B, Solid State Physics Division

RESEARCH PUBLICATIONS

International Journals

1. A non-vacuum method for synthesis of ZnO films by thermal oxidation of ZnS films in air, *T K Chaudhuri and B Pathak*, **Materials Letters** (2007) [In press] doi:10.1016/j.matlet.2007.04.039

2. Pulsed laser deposition of CeO_2 films on glass at room temperature, *Tapas Chaudhuri, Sovannary Phok and Raghu Bhattacharya*, **Thin solid Films 515** (2007) 6971 -6974

3. Effect of seed layer on biaxial texturing of pulsed laser deposited YSZ films on electrodeposited Ir/Ni–W tapes, *Tapas Chaudhuri, Priscila Spagnol, Sovannary Phok and Raghu Bhattacharya*, **Physica C: Superconductivity** 443 (2006) 81-84

4. Electrodeposited biaxially textured buffer layer for $YBa_2Cu_3O_{7-\delta}$ (YBCO) superconductor oxide films, *Raghu Bhattacharya, Sovannary Phok, Priscila Spagnol and Tapas Chaudhuri*, **Journal of Electrochemical Society** 153 (2006) C273-C276

5. Bipolar plates for PEM fuel cells : A review, *Allen Hermann, Tapas Chaudhuri and Priscila Spagnol*, **International Journal of Hydrogen Energy** 30 (2005) 1297-1302

6. Deposition of PbS particles from a nonaqueous chemical bath at room temperature, *Tapas Chaudhuri, Nabanita Saha and Petr Saha,* **Materials Letters** 59 (2005) 2191

7. Electrodeposited biaxially textured Ni layer for YBCO superconductor oxide films, *Raghu Bhattacharya, Jun Chen, Priscila Spagnol and Tapas Chaudhuri,* **Electrochemistry and Solid State Science Letters** 7 (2004) D11

8. Estimation of electrical backup for solar box cookers, *T. K. Chaudhuri,* **Renewable Energy** 17 (1999) 569

9. A solar thermophotovoltaic converter using PbS photovoltaic cells, *T. K. Chaudhur*i, **International Journal of Energy Research** 16 (1992) 481

10. Preparation and characterization of chemically deposited lead sulphide thin films, *P. K. Basu, T. K. Chaudhuri, K. C. Nandi, R. S. Saraswat and H. N. Acharya*, **Journal of Materials Science** 25 (1990) L 352.

11. A chemical method for preparing copper iodide thin films, *T. K. Chaudhuri, P. K. Basu, A. B. Patra, R. S. Saraswat and H. N. Acharya,* **Japanese Journal of Applied Physics** 29 (1990) L 352.

12. Preparation of bismuth iodide thin films by a chemical method, *T. K. Chaudhuri, A. B. Patra, P. K. Basu, R. S. Saraswat and H. N. Acharya.* **Materials Letters** 8 (1989) 361.

13. Deposition of cadmium chalcogenide thin films by a solution growth technique using TEA as complexing agent, *A Mondal, T. K. Chaudhuri and P. Pramanik,* **Solar Energy Materials** 7 (1983) 431.

14. The dip-dry technique for preparing photosensitive Sb_2S_3 films, *B. B. Nayak, T. K. Chaudhuri, H. N. Acharya and G. B. Mitra,* **Thin Solid Films** 92 (1982) 309.

15. Preparation of lead iodide films by iodination of chemically deposited lead sulphide films, *T. K. Chaudhuri and H. N. Acharya,* **Materials Research Bulletin** 17 (1982) 279.

16. A dip-dry process of preparing photosensitive films of PbS for thermophotovoltaic applications, *T. K. Chaudhuri, H. N. Acharya and B. B. Nayak,* **Thin Solids Films** 83 (1981) L 16

National Journals

17. Estimating strength of electrical backup for solar box cooker using simulation, G. *Sharan and T. K. Chaudhuri*, **SESI Journal** 8 (1998) 69.

18. Limitation of BIS design specifications for solar box cooker, *T. K. Chaudhuri*, **SESI Journal** 8 (1998) 1

19. Synthesis and electrical properties of organic semiconducting polymer : (a) Polythioacridine (b) Sulphur bridged polyacrylonitrile, *P. Pramanik, D. Mukherjee and T. K. Chaudhuri,* **Indian Journal of Chemistry** 234 (1984) 839.

Proceedings of international conferences / symposiums (refereed)

20. Electrodeposited Biaxially Textured CeO2 and CeO2:Sm Buffer Layer for YBCO Superconductor Oxide Films, *Raghu Bhattacharya, Sovannary Phok, Priscila Spagnol, and Tapas Chaudhuri*, **AIP Conference Proceedings : Advances In Cryogenic Engineering,** Volume 824 (March 31, 2006), pp. 751-757

21. Opportunities And Challenges In Nanoelectronics, *Allen Hermann, Tapas Chaudhuri, Vijay Singh and R.S. Singh*, **Proceedings of the 13th International Workshop on the Physics of Semiconductors** (2005) National Physical Laboratory, New Delhi, INDIA

22. Pulsed laser deposition of bi-axially textured YSZ/CeO_2 films on electrodeposited Ir/Ni-W tapes for YBCO, *Tapas Chaudhuri, Priscila Spagnol, Raghu Bhattacharya and Sovannary Phok,* **Materials Research Society Symposium Proceedings**, Vol. 868E (2005) pp C6.3.1 – C6.3.6

23. Development of electrodeposited iridium as buffer layer for YBCO superconductors, *Priscila Spagnol, Tapas Chaudhuri, Raghu Bhattacharya and Sovannary Phok,* **Materials Research Society Symposium Proceedings,** Vol. 868E (2005) pp C5.5.1

24. Superconducting YBCO films prepared by electro-deposition and spray pyrolysis, *Sovannary Phok, Priscila Spagnol, Tapas Chaudhuri, Raghu Bhattacharya,* **Materials Research Society Symposium Proceedings,** Vol. 868E (2005) pp C5.6.1

25. Non-vacuum deposition of buffer layer and YBCO superconductor, *Raghu Bhattacharya, Priscila Spagnol, Sovannary Phok, Tapas Chaudhuri,* **Materials Research Society Symposium Proceedings,** Vol. 868E (2005) pp C6.7.1

26. Performance testing of a concentrating type community solar cooker, *T. K. Chaudhuri, S. K. Philip and H. N. Mistry,* **Proceeding of Third International**

Conference on Solar Cookers Use and Technology (1997), Coimbatore, India, p 158 - 163.

27. Testing of solar box cookers, *S. K. Philip, T. K. Chaudhuri and H. N. Mistry,* **Proceeding of Third International Conference on Solar Cookers Use and Technology (1997),** Coimbatore, p 182 - 186.
28. Design of thin film solar thermoelectric generator, *T. K. Chaudhuri and S. Chatterjee*, **Proceedings of XI International Conference on Thermoelectrics (1992)**, (Arlington,USA) pp 40.

29. Design parameters of 10 watt thermoelectric generator based on Indian galena, *S. Chatterjee, T K Chaudhuri and H N Acharya,* **Proceedings of XI International Conference on Thermoelectrics (1992)** (Arlington, USA) pp 55.

30. Holographic NDT study of stress hexagonal plats for solar concentrators, *J. S. Rao, T. K. Chaudhuri, V. T. C. S.Rao, G. G. Sarkar and A. Dasgupta,* **13th World Conference on Nondestructive Testing (1992)** Sao Paulo, Brazil

31. Effect of doping and lifetime on TPV cells, *T. K. Chaudhuri and S. Chatterjee*, **Sixth International PV Science & Engineering Conference Proceedings (1992)** (New Delhi, India) pp 692

32. Electrostatic precipitation India: present status and future trends, *P. C. Mahendru*, S. *Chand and T. K. Chaudhuri,* **International Symposium on Electrostatic Precipitation (1984)** Kyoto, Japan

Proceedings of national conferences / symposiums (refereed)

33. Preparation of silanes from rice husks, *K.C. Nandi, A.K. Sinha, T.K. Chaudhuri*, *H.D. Banerjee, A. K. Biswas, A. K. Barua, H. N. Acharya*, **National Solar Energy Convention (1986)** Madurai, India.

34. Preparation and characterization of a-Si film produced by thermal CVD of silanes prepared from rice husks - *A. K. Sinha, K. C. Nandi, T. K. Chaudhuri, H. D.* Banerjee, *A. K. Biswas, A. K. Barua, H. N. Acharya, L. K. Malhotra and K. L. Chopra*, **National Solar Energy Convention (1986)** Madurai, India

35. Amorphous silicon solar selective absorber layers prepared by CVD of silanes made from rice husks - *K. C. Nandi, A. K. Sinha, T. K. Chaudhuri, H. D. Banerjee*, *A. K. Biswas, A. K. Barua, H. N. Acharya*, **National Solar Energy Convention (1986)** Madurai, India

36. A chemical method for deposition of thin films of cadmium chalcogenide and conversion of visible light to electrical energy in aqueous electrolytes, *P. Pramanik, T. K. Chaudhuri and A. Mondal*, **National Solar Energy Convention Proceedings (1980)** p. 398

PATENT : 1 (filed)

1. Electrodeposition of biaxially textured layered on a substrate (*Raghu Bhattacharya, Sovannary Phok, Priscila Spagnol, and Tapas Chaudhuri)* International Patent filed on 01.08.2005. (No. WO 2007/015692 A1)
2. Nonvacuum processes for synthesizing semiconducting sulphides and their thin films *(Tapas K Chaudhuri)* Initiated procedures for filing

SPONSORED PROJECTS UNDERTAKEN (as PI)

Funding Agency	Title	Duration
1. Gujarat Council on Science and Technology (GUJCOST), Government of Gujarat	Development of nanocomposites of lead sulphide – conjugated polymer for solar cells	13 July 2007 to 12 July 2009
2. Indian Council of Agricultural Research (ICAR), New Delhi	Development of solar greenhouse for Kachchh	Dec 1998 to Dec 2001
3. Ministry of Non-conventional Energy Sources (MNES), New Delhi and Steelhacks Industries, V. U. Nagar,	Development of 250 lpd domestic solar hot water system based on heat pipes	May 1997 to April 1999
4. National Dairy Development Board (NDDB), Anand	Development and supply of solar photovoltaic system for electronic milk tester	Sep 1997 to Dec 1997
5. New Energy and Technology Development Organization (NEDO), Japan and Tata Energy Research Institute (TERI), New Delhi	Renewable energy potential of Kachchh district of Gujarat	June 1997 to Nov 1997
6. Gujarat Energy Development Agency (GEDA), Vadodara	Computer aided optimization of solar box cooker	March 1997 to Feb 1998
7. Gujarat Energy Development Agency (GEDA), Vadodara	Development and performance study of a non-fouling fluidized bed heat exchanger for 1000 lpd solar hot water system	Oct 1996 to March 1998
8. Gujarat Energy Development Agency (GEDA), Vadodara	Development of a laboratory model of non-fouling fluidized bed heat exchanger and its performance study under simulated conditions	July 1994 to June 1995

SCHOLARSHIPS, AWARDS, ETC.

- National Research Fellowship, Commonwealth of Australia at the School of Physics, University of New South Wales, Australia [For post-doctoral research] (1987 - 1988)

- Senior Fellowship, Indian Space Research Organization (ISRO) at the Department of Physics and Meteorology, IIT, Kharagpur (1978 – 1982)

- Institute Research Scholarship, Indian Institute of Technology, Kharagpur (1976 – 1977

PROFESSIONAL MEMBERSHIP

- Materials Research Society (USA)
- American Physical Society
- Solar Energy Society of India
- Indian Physics Association

CURRENT RESEARCH INTEREST

- Nonvacuum synthesis of semiconductor nanostructures and thin films for energy conversion devices
- Non-vacuum processes for deposition of non-toxic thin films for solar cells
- Inorganic – organic semiconductor nanocomposites for solar cells