

CURRICULUM - VITAE



MAHESHWAR SHARON

Walchand Center for Research in Nanotechnology & Bionanotechnology (WCRnB),
Walchand College of Arts & Science, Solapur

Here I give some of my views, I hope you will appreciate them:

1. We all take a birth, get our birth registered and finally after the death it is again registered in the Register of Corporation and we are forgotten thereafter. But

“Would NATURE be not proud of us if we proved our birth a worthwhile?”

2. We generate our first knowledge of standing on this planet through the selfless efforts of our mother, but

When a creator feels the NEED to prove her WORTHINESS from her creation, should that society be not destined to DOOM?

3. *Is it not true that*

Discipline demands suffering to become a perfect human being, hence they are rare.

BIOGRAPHY (Brief)

Dr. Maheshwar Sharon, (born 10th Jan 1941) son of late Sri. Bhrigunath Prasad, Advocate, hails from Chapra (Bihar). He proceeded to UK in 1960 for his higher studies. He is married (1964) to Dr. Madhuri Sharon (Ex- Director, Bio-science Division, Reliance Biotech. Mumbai, presently Managing Director, Monad Nanotech Pvt. Ltd and Research Director, WCRNB) and has two daughters both Ph.D. in Biotechnology (Japan) and married. They are working in USA.

After accomplishing postgraduate diplomas, one in Nuclear Power (Strathclyde University, Glasgow, UK), where he was involved with reactor technology and other in Radiochemistry (Leicester Polytechnic, UK), where he studied Nucleophilic Aromatic Substitution Reactions using tracer technique, he completed his Ph.D. (Solid State Chemistry) from Leicester University, UK in 1967. He studied the electrical conduction and tritium diffusion in hydrogen bonded crystals. He took two postdoctoral research fellowships, one at Boltan Institute of Technology, UK where he studied (n, γ) reactions and other at the Manchester University, UK where he also studied (n, γ) reactions with phosphate ions using thermal neutron reactor of Manchester University.

In 1971 he returned to India and joined Himachal Pradesh University, as Asstt. Prof. and then moved to Pune University (1973) as a Reader in Radiochemistry. In 1978 he joined Indian Institute of Technology, Bombay as a Professor in Chemistry, where he continued his research in Carbon, Solar Energy, Electrochemistry and Superconductivity. He retired from IIT Bombay on 30th June 2003. He served as the Member of Board of IIT Bombay for full two years. He was the founder member of the Energy System Engineering Dept of IIT Bombay and continued to be its member till 2003.

After retirement, he joined on 1st July 2003 at Birla College, Kalyan and established a research centre of Nanotechnology. He along with Dr Madhuri Sharon joined this college as an Adjunct Professors of Mumbai University. Between them there were 6 students who completed their degree of Ph.D. of different universities (Mumbai University, Kolhapur University, Dr Babsaheb Ambedkar technological University, Lonare and Solapur University). They set up research facilities for carrying out research in the areas of carbon nanotechnology.

In 2009, both joined as Research Director at South Indian Children Education Society, Ambarnath to set up a Research Center for Nanotechnology and Bionanotechnology. Here they guided M.Sc. and M.Tech students studying at different Universities for their research project. At this center they guided 100 students for these projects. They also guided four students who completed their Ph.D. degree. At this center they published more than 90 publications. In December 2014, due to financial problems, the research center was closed.

In June 2014 we both joined Walchand College of Arts and Science, Solapur as Research Director to set up a research Center for Nanotechnology & Bionanotechnology (WCRNB).

Here we started research in Nanotechnology and Bionnanotechnology as well as started a M.Sc (two years course) in Nanotechnology.

He is a pioneer in developing a new precursor Camphor, kerosene and various none edible oil for synthesizing almost all forms of carbon: nanobeads, nanotubes, nanofibers, and various new types of carbon nonomaterials. He is the first one to develop successfully a carbon (n-C/p-C) photovoltaic solar cell from camphoric carbon as well an Eco-friendly photoelectrochemical technique to clean various stains from cloths without using detergents or bleach. He has developed techniques to kill pathogenic bacteria of drinking water by a photoelectrochemical technique. He also worked to inhibit the growth of Glioma tumour using carbon nanotubes. He is also a pioneer to develop a Solar Chargeable Battery and a concept known as Sharon-Schottky type solar cell. This concept is now being used to develop SEPTUM type solar cell. He is the pioneer in developing a photoactive lead oxide electrode for its application in photoelectrochemical cell.

He has guided 39 Ph.D. and 5 M.Tech. students. He has published more than 200 publications in the National and International journals. He has successfully completed 26 projects of which two are internationals (Indo-French, and Indo-UK). He has published 11 books. He is an Ex-Member of the Board of Governors of IIT Bombay. He is member and Fellow of several National and International Educational Societies. He has been reviewer of papers to be published in J. Electrochimica Acta, Int. J. Hydrogen Energy and J. Chemistry and Materials Science. He is the recipient of B. D. Bangur-2001 award, for his contribution towards development of carbonnanotubes. He has 4 patents of which one is International patent.

ACHIEVEMENTS

Contributions to the science are enumerated below:

1. His group is the first in the world to find camphor, Kerosene and various non-edible oil as New natural precursors for synthesizing various forms of carbon. The procedure developed by his group gives a new commercial and economical viable avenue to prepare thin film coating of either n- or p-type carbon over any ceramic materials. This work has established an indigenous new superior route for making all forms of carbon:
 - Carbon nanobeads,
 - Nanotubes(n- and p-type semiconducting carbon of band gap in the range of 1.1 eV to 2.8 eV),
 - Conducting carbon fiber,
 - Glassy carbon, diamond like carbon and many other forms of carbon nanomaterials.
2. His group has established applications of these materials for:
 - Developing Carbon based photovoltaic solar cell,
 - Killing cancerous cells & pathogenic bacteria by a simple process using only a commercial grade iron oxide,

- Electrodes for electrolysis of saline water used for caustic soda production in Chlor-Alkali Industries,
 - Anode material for lithium secondary battery etc.
 - Developed a Photoelectrochemical technique to clean stains of various kinds from cloths without using any detergents or bleach. One National patent has been applied for this work.
 - Developing electrodes for hydrogen/oxygen fuel cell. One National patent has been applied.
 - Developed Spray Pyrolysis techniques for carbon nanotubes growth resulting a Japanese patent.
 - Developed carbon fibers from cotton for the storage of hydrogen to the extent of 13.3wt%.
3. He has successfully developed Sharon - Schottky type Solar Cell, Solar Chargeable Battery (named as “**Saur-Vyddut Kosh**” and a photoactive lead oxide giving 800mV as photopotential and 5 mAcm⁻² as photocurrent(the highest value so far reported).
 4. He has also been involved with International Collaborations with various groups in Japan, Germany, Australia and France. He also has two International projects, one with France and other with UK (with Prof. H. W. Kroto’s (Noble Laureate) research group).
 5. Under the UGC program he has interacted with Nagpur University, Gujarat University, Kolhapur University and Mumbai University for giving series of lecture in the areas of Solar Energy and carbon and helped them to initiate research in PEC cell.
 6. He has been the referee of International journals (International Hydrogen Energy, Electrochimica Acta & Materials Chemistry and Physics) as well as of National Journal (Indian J. Chemistry, CSIR). He has been the member of committee of Photoelectrochemical Cell, Ministry for Non-Conventional Energy Sources (MNES) and Ex-Member of Board of Governors of Indian Institute of Technology, Bombay.
 7. He organized for the first time an International UNESCO workshop on Photoelectrochemistry for 15 days at IIT Mumbai, and has jointly edited a book on Photoelectrochemistry of semiconductor, which was an outcome of this workshop.
 8. In collaboration with Prof. Sundersingh, Electrical Engg. Dept, IIT Bombay, he has been involved with development of Scanning Tunneling Microscope and Electric driven moped. Sri Rahul Bajaj donated a Sunny moped for this purpose.
 9. He is recipient of **B.D. Bangur-2001 award**, which carries a cash award of Rs 15000, and a citation "the best contribution towards development of carbon nanotubes".
 10. Based on his research work, a company has been formed under the name of Monad Nanotech Pvt. Ltd. This company is the first of its kind in India to produce and develop products like fuel cell, supercapacitor, carbon solar cell etc. This company has also developed a technology to convert waste plastic and

house hold garbage into wax, furnace oil, activated carbon and carbon nanomaterials.

1.0 Personal Details

Name : **MAHESHWAR SHARON**

Date of Birth : 10th January 1941.

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2.0 Specialization

- Electrochemistry (Photoelectrochemistry & Battery)
- Solid State Chemistry (Diffusion & Electrical Properties)
- Superconductivity
- Carbon (fullerenes, nanocarbon, low band gap semiconductor etc)
- Energy : Photovoltaic wet & dry Solar Cells

2.1 Books

1. **Photoelectrochemical Solar Cell**, Edited M. Sharon and K. S. V. Santhanam, Elsevier, (Amsterdam), 1988, Vol. – 50
2. **The Photoelectrochemistry of Semiconductor/Electrolyte Solar cells** Maheshwar Sharon, Chapter-12, vol. 6: *Semiconductor Electrodes and Photoelectrochemistry*, Ed. Stuart Licht, Group Editors Bard, Stratmann of Encyclopedia of Electrochemistry, Wiley-VCH, June 2001
3. **Solar Photoelectrochemical Generation of Hydrogen Fuel** Maheshwar Sharon, Chapter-14, vol. 6: *Semiconductor Electrodes and Photoelectrochemistry*, Ed. Stuart Licht, Group Editors Bard, Stratmann of Encyclopedia of Electrochemistry, Wiley-VCH, June 2001
4. **Carbon nanomaterials** Maheshwar Sharon, one chapter "*Encyclopedia of Nanotechnology*" Ed. H.S. Nalwa, American Scientific Publishers (2003)
5. **Nanoforms of carbon and its applications** Ed. Maheshwar Sharon & Madhuri Sharon and also written 7 chapters. Pub. Monad Nanotech Pvt. Ltd. 2007 pp135 ISBN 978-81-905713 -0-2
6. **Nuclear Chemistry**, Maheshwar Sharon, Ann publication, New Delhi, 2009, ISBN (10) 81.9084-066-5 and (13) 978-81-9084-0066-8
7. **Carbon Nanoforms and Applications**, Maheshwar Sharon, Madhuri Sharon, McGraw Hill, USA 2010, ISBN 978-0-07-163960-6, MHID 0-07-163960

8. **Carbon for Microwave Absorption** Mahedshwar Sharon, Madhuri Sharon, Ritesh Wishwakarma and K Datta NANTOTECHNOLOGY ,ISBN: 1-62699-000-X, Vol.5 (Chapter.12): Defence Application **Publisher:** Studium Press LLC, Houston, USA
9. **Solar cell: Yesterday and Tomorrow, Maheshwar Sharon & Madhuri Sharon** NANTOTECHNOLOGY,ISBN: 1-62699-000-X Vol.6 (chapter -11)Energy and Environmen **Publisher:** Studium Press LLC. Houston,USA
10. **Graphene: An introduction to the fundamentals and industrial applications.** Madhuri Sharon and Maheshwar Sharon, John Wiley and Sons, Hoboken 2015,320 pp, ISBN 978-1118842560, DOI: 10.1002/anie.201602067
11. **An Introduction to the Physics and Electrochemistry of Semiconductors: Fundamentals and Applications,** Maheshwar Sharon Scrivener Publishing, Wiley 2016,

3.0 Educational

Degree	Institution	Field	Year
D.R.C.	StratchclydeUniv. Glasgow, UK	Nuclear Power ¹	1962
P.G.D.	LeicesterPolytech, UK	Radiochemistry ²	1964
Ph.D.	Leicester Univ.UK	SolidState Chemistry ³	1967

1.A thesis on the design of a thermal reactor of 100 Mwatt was submitted

2.A thesis entitled *Some Symmetrical Bromine and Chlorine exchange reaction at Aromatic Carbon Atoms* was written. Bromine exchange between sodium bromide and 1-bromo-2:4-dinitrobenzene and 1-bromo-2:6-dinitrobenzene was studied using tracer technique. The kinetic parameters were determined and the mechanism of the reaction was established. Likewise chlorine exchange reactions were also studied with analogous organic compounds as mentioned above. A dissertation was also written entitled *Radiochemistry with special reference to Nuclear Chemistry.*

3.The title of the thesis was *"Electrical Conduction & Diffusion Studies of Some Hydrogen Bonded Crystals."* Under this thesis, a method was developed for studying proton conduction in H-bonded solids & determination of its transport number. Deuterium diffusion and its kinetic parameters were determined to understand the mechanism of conduction diffusion processes in solids where more than one type of cations could be responsible for ionic migration.

4. Post-Doctoral Experience

Institution	Nature of job	Period
1.Bolton Institute of Technology, UK	High energy nuclear reactions in solution ⁴	1967-69
2.Manchester University	Thermal neutron reaction ⁵	1969-71

4. Thermal neutron recoil reaction with iodo derivative of dinitrobenzene in different solvents was studied using thermal reactor. The mechanism of the recoil reactions was studied.

5. Thermal-neutron irradiation of phosphate solutions were studied using Manchester University Research reactor. Various products of phosphate formed by (n, γ) reaction were analyzed by solvent extraction technique. The mechanism of Szilard-Chalmer's reaction on the phosphate solution was established.

5. Employment

Institution	Position	Nature of job	Period
Leicester Polytechnic	Research Asstt.	Research Teaching	62 - 67
Bolton Institute Tech.	Post-doc Fellow	Research	67 - 69
Manchester Univ.	Post-doc Fellow	Research	69 - 71
Himachal Pradesh Univ.	Asstt. Prof.	Teaching Research	71 - 73
Pune University	Reader	Teaching Research	73 - 78
Indian Institute of Technology, Bombay	Professor	Teaching Research	78 - 2003
Birla College, Kalyan	Adjunct professor	Research	2003 - July 2009
CSIR & UGC Professor Emeritus		2003 - 2005	
Model College	Adjunct Professor		Aug 2009
CHM College	Adjunct Professor		Aug 2009
SICES College	Research Director		2009-2014
Walchand College	Research Director		June 2014

6. Member of Scientific Bodies/award

1. Fellow of Royal Society of Chemistry, London (1968-2003).
2. Life Member of National Academy of Science, Allahabad.
3. Fellow of Electrochemical Society, Karaikudi
4. Life member of Carbon Society of India
5. Life member of Solar Energy Society of India
6. Life member of Indian Association of Solid State Chemists & Allied Scientists

Awards

B.D. Bangur award-2001 for best contribution to development of carbon nanomaterials.

7.0 Patents

(i) No 055788299.5-1218-JP2005017911 (USA, European, and Japan) / 21/09/2005
Title: **Vapor Phase Method for producing carbon nanotube**

(ii) No647/20.05.2003 (Indian, applied)
Title: **Conversion of plastic into valuable added products**

(iii) No206020 /09.01.2001(Indian)
Title: **An Environment and user friendly and efficient method and formulation for cleaning cloths**

(iv) No186663 /12-02.1998 (Indian)
Title: **A process for the synthesis of active carbon materials from camphor**

(v) No187149 /12.02.1998 (Indian)
Title: **A process for the synthesis of glassy carbon from kerosene**

8. International Collaboration

1. Indo-French collaboration 1994-97 with CNRS, Meudon, France.and Dr. Michael Neumann-Spallart (CNRS, Meudon) visits our lab every year since then.
2. Indo-UK Collaboration 1999-2001 with Sussex University, UK
3. Nagoya Institute of Technology, Japan since 1997
4. MeijoUniversity, Nagoya, Japan since 1998

9. Projects sanctioned & completed (26):

26. Title: **Application of Carbon nanotubes and carbon beads composite as Microwave Absorber**

Sponsor: DRDO

Amount: 15.9 lakhs

Year: 2010

25. Title: **Design and development of Alkaline Fuel Cell: Scaling up from bench scale i.e.**

185 W to 500 W.

Sponsor: MNRE

Amount:44.19 lakhs

Year: June 2010

- 24. Title: Synthesis and utilization of carbon nanomaterials as a sensor to detect pesticide residue in food, soil and water**
Sponsor: Ministry of Environment & Forest
Amount : 16.06 lakhs
Year: 2008-2011
23. Title: **Scaling up of conversion technology of waste plastic into a CNM and burnable wax**
Sponsor: UGC
Amount : 6.72 lakhs
Year : 2007 - 2010
22. Title: **Preparation of thin films of carbon from plant derived precursors for p-type and n-type semiconductor**
Sponsor: DST
Amount : Rs 10.90 lakhs
Year : 2007-2010
21. Title: **Hydrogen adsorption by Carbon nanomaterials**
Sponsor: BRNS
Amount : 11.50 laks
Year : 2004-2007
20. Title: **Storage of hydrogen by carbon nanotubes**
Sponsor: CSIR
Amount: 6.01 laks
Year : 2003-2006
19. Title: **Development of carbon nanotubes from natural source camphor for its application as an anode in secondary lithium battery and as electron field emitters.**
Sponsor: Indo-UK (DST)
Amount: Rs 3.13 lakhs
Year: 999-2002
11. Title: **Study the mechanism, which controls the variation in the band gap in the semiconducting carbon of 1-2 eV.**
Sponsor: DST
Amount: Rs 5.5 lakhs
Year: 1999-2002
12. Title: **Study of metal-Schottky type photovoltaic cell with electrochemically prepared α -PbO thin film.**
Sponsor: CSIR

Amount: Rs 5.53 lakhs
Year: 1998-2001

16. Title: **Preparation of carbon fiber, carbon beads and conducting carbon by camphor route for adsorption/reflection studies.**

Sponsor: DMSRDE (Kanpur)
Amount: Rs. 4.0 lakhs
Year: 1998-2000

15. Title: **Electrodeposition and investigation of low cost polycrystalline thin films of ii-vi semiconductors for solar energy conversion.**

SPONSOR: IndoFrenchCenter (IFCPAR)
AMOUNT: Rs. 25.02 lakhs plus International travel and per diem for 30 days/year.
YEAR: 1994-1997

14. Title: **Study of photocatalytic degradation of pesticides & carcinogenic materials present in village drinking water**

SPONSOR: Ministry of Environment & Forest
AMOUNT: Rs. 3.09 lakhs
YEAR: 1993-1996

13. Title: **Development & fabrication of high-resolution electrochemical microscope for studying surface properties of thin films.**

SPONSOR: MHRD
AMOUNT: Rs. 13.0 Lakhs
YEAR: 1991-94

12 Title: **Study the mechanism of corrosion of a semiconductor by rotating ring disc electrode technique.**

SPONSOR: CSIR
AMOUNT: Rs 3.19 lakhs
Year: 1990-93

11. Title: **Thallium based superconducting systems.**

SPONSOR: DST
AMOUNT: Rs 8.0 lakhs
YEAR: 1990-91

10. Title: **Development of a solar rechargeable battery.**

SPONSOR: MNES
AMOUNT: Rs 5.92 lakhs
YEAR: 1986-90

9.Title: **Preparation & characterization of semiconductor materials.**
SPONSOR: BRNS
AMOUNT: Rs 1.219 lakhs
YEAR: 1981-83

8.Title: **Study of chumbak-mani- an ancient soft ferrite material**
SPONSOR: C.S.I.R.
AMOUNT: Rs 1.80 lakhs
YEAR: 1983-90.

7.Title: **Development of photoelectrochemical solar cells.**
SPONSOR: C.S.I.R.
AMOUNT: Rs 5.27 lakhs
YEAR: 1983-85.

6.Title: **Development of low band gap non-corrosive semiconductor materials to be used in PEC cells for photoelectrolysis of water.**
SPONSOR: MNES
AMOUNT: Rs 3.53 lakhs
YEAR: 1981-84.

5.Title: **Electrical conduction studies of single crystal of ferrites & garnets**
SPONSOR: UGC
AMOUNT: Rs 1.04 lakhs
YEAR: 1978-81

4.Title: **Electrical conduction & diffusion studies in crystals containing hydrogen bond.**
SPONSOR: C.S.I.R.
AMOUNT: Rs 1.27 lakhs
YEAR: 1978-80.

3.Title: **Study the effect of radiation on the electrical conduction of some lithium & calcium salts & study their utilities as dosimeter.**
SPONSOR: UGC
AMOUNT: Rs 1.24 lakhs
YEAR: 1978-80.

2.Title: **Study of solar photochemical galvanic cell.**
SPONSOR: TERI
AMOUNT: Rs 1.32 lakhs

YEAR: 1977-79.

1.Title: **Nucleophilic aromatic substitution reaction studies initiated thermally and by thermal**

neutrons.

SPONSOR: BRNS.

AMOUNT: Rs 39690.0

YEAR: 1974-77.

10. Papers referred by others ([Source Science Finder](#))

1. Electrosynthesis & photoelectrochemical activity of iron oxide, **M. Sharon** & C. Natrajan *Bull. Electrochem.* 7(1), 34 - 37, 1991.
Cited by others **32**
2. Theoretical Investigation of Optimal Mixing Ratio for PbO₂ and TiO₂ to produce a low band gap noncorrosive photoelectrode, **M. Sharon**, K. Murali Krishna, M.K.Mishra and V.R.Marathe. *J.Chem. Phys.* 163, 401 – 412, (1992).
Cited by others **28**
3. Electrodeposition of Zinc Selenide, **Maheshwar Sharon**, C. Natrajan, C. Levy Clement & M. Neumann-Spallart. *Thin Solid Films.* 237, 118 – 123, (1994).
Cited by others **28**
4. Semiconducting Camphoric Carbon Tubules, **Maheshwar. Sharon**, K. Mukhopadhyay and K. Murali Krishna, *Carbon*, 34(2),(1996), 251-264.
Cited by others **23**
5. Fullerenes from camphor: A Natural Source., **Maheshwar Sharon**, Kingsuk Mukhopadhyay, Kalaga Murali Krishna *Phys. Rev. Lett.* 72(20), (1994), 3182 – 3185
Cited by other **20**
6. Electrodeposition of lead sulphide in acidic medium. **Maheshwar Sharon**, K. S. Ramaiah, Mukul Kumar, M. Neumann-Spallart, C. Levy-Clement, *J. Electroanal. Chem.* 436,(1997), 49-52.
Cited by others **19**
7. A simple method and a new source for getting diamond like carbon film and polycrystalline diamond film, **Maheshwar. Sharon**, K. Mukhopadhyay, and K. Murali Krishna *Mater. Chem. & Phys.*, 49,(1997), 252-253 **Cited by others**
17
8. Effect of pyrolyzing time and temperature on the band gap of camphor pyrolyzed semiconducting carbon films **Maheshwar Sharon**, Sameer Jain, P. D. Kichambre, Mukul Kumar, *Materials Chemistry, and Physics*, 8 (1998) 284-288.
Cited by others **15**
9. Electrosynthesis of lead oxide film on a lead electrode in alkaline solution by a potentiodynamic method: its characterization and photoelectrochemical properties, P. Veluchamy, **Maheshwar Sharon**, M. Shimizu, H. Minoura, *J. Electroanal. Chem.* 371,205-213, (1994),

- Cited by others** **15**
10. Semiconducting Multichannel- Multilayer Camphoric Tubules, **M. Sharon**, K. Mukhopadhyay, I. Mukhopadhyay and K. Murali Krishna, *Carbon*, 33(3), (1995), 331-333.
- Cited by others** **14**
11. Electrodeposition of $Zn_{1-x}Cd_xSe_{(x=0-1)}$ thin films, C. Natrajan, G. Nogami, **M. Sharon**, *This Solid Films*, 261, 44-51, 1995.
- Cited by others** **14**
12. A Photoelectrochemical Solar Cells from p-Carbon semiconductor, **Maheshwar. Sharon**, I. Mukhopadhyay and K. Mukhopadhyay, *Sol. Energy Mat. Sol. Cells*, 45, (1997) 35-41,
- Cited by others** **11**
13. Glassy carbon from camphor - a natural source, **Maheshwar. Sharon** and K. Mukhopadhyay, *Mat. Chem. And Phys.*, 49, (1997), 105-109.
- Cited by others** **11**
14. Electrodeposition and photovoltaic properties of zinc cadmium selenide thin films, C. Natrajan, G. Nogami, **M. Sharon**, *Bull. Electrochem.*, 12(3-4) 136-140, 1996.
- Cited by others** **11**
15. Diamond Like Carbon Film from Camphor Soot, **M. Sharon** and K. Mukhopadhyay, *Materials and Manufacturing Processes*, 12(3), (1997), 541-554.
- Cited by others** **10**
16. Photoelectrochemical studies of photoactive lead oxide prepared by the Potential pulse coupled potentiodynamic anodization technique in alkaline medium, **M. Sharon**, I. Mukhopadhyay, M. S. S. Raghavan, H. Minoura and P. Veluchamy, *J. Electroanal. Chem.*, 379, 531, (1994).
- Cited by others** **10**
17. Photoelectrochemical studies of oxide film of $PbO_n + SnO_n$ obtained by potentiodynamic anodization of Pb/Sn alloy electrode in alkaline medium, **M. Sharon**, I. Mukhopadhyay, P. Veluchamy and H. Minoura, *J. Electroanal. Chem.*, 401, 139-146, (1996).
- Cited by others** **10**
18. Surface modification by the potential delay technique to obtain a photoactive PbO film, **Maheshwar Sharon**, Indrajit Mukhopadhyay, Susanta Ghosh, *Surface Science*, 384, (1997), 234-239
- Cited by others** **10**
19. NCDP-plated CdSe film PEC cell studies, **M. Sharon**, M.K. Sharan and M. Kumar, *Solar Energy materials & Solar Cells* 51, 35-45, 1997.
- Cited by others** **10**

10.1 Paper Published

Summary of Papers Published

Nuclear Chemistry:	07
Solid State chemistry:	29
Photoelectrochemistry:	74
Superconductivity:	15
Carbon:	90
Solar Energy:	01
Total (as on March. 2016)	216

10.2 Carbon

1. **Fullerenes from camphor: A Natural Source.**, Maheshwar Sharon, Kingsuk Mukhopadhyay, Kalaga Murali Krishna *Phys. Rev. Lett.* 72(20), (1994), 3182 – 3185[[impact factor 7.621](#)]
2. **Fullerenes: C₆₀ from Camphor - A Novel Approach**, Maheshwar. Sharon, K. Mukhopadhyay, and K. Murali Krishna, *Curr. Sci.*, 67(8), (1994), 602.[[impact factor 0.567](#)]
3. **C₆₀ and Polyhedral Fullerenes Clusters from Camphor: A Natural Source**, M. Sharon, K. Mukhopadhyay and K. Murali Krishna, *Physics News*, June, (1994), 89-91.
4. **Semiconducting Multichannel- Multilayer Camphoric Tubules**, M. Sharon, K. Mukhopadhyay, I. Mukhopadhyay and K. Murali Krishna, *Carbon*, 33(3), (1995), 331-333.[[impact factor 4.260](#)]
5. **Semiconducting Camphoric Carbon Tubules**, Maheshwar. Sharon, K. Mukhopadhyay and K. Murali Krishna, *Carbon*, 34(2),(1996), 251-264.[[impact factor 4.260](#)]
6. **A Photoelectrochemical Solar Cells from p-Carbon semiconductor**, Maheshwar. Sharon, I. Mukhopadhyay and K. Mukhopadhyay, *Sol. Energy Mat. Sol. Cells*, 45, (1997)35-41, [[impact factor 2.002](#)]
7. **Glassy carbon from camphor - a natural source**, Maheshwar. Sharon and K. Mukhopadhyay, *Mat. Chem. And Phys.*, 49, (1997), 105-109.[[impact factor 1.871](#)]
8. **A simple method and a new source for getting diamond like carbon film and polycrystalline diamond film**, Maheshwar. Sharon, K. Mukhopadhyay, and K. Murali Krishna *Mater. Chem. & Phys.*, 49,(1997), 252-257.[[impact factor 1.871](#)]

9. **Diamond Like Carbon Film from Camphor Soot**, M. Sharon and K. Mukhopadhyay, *Materials and Manufacturing Processes*, 12(3),(1997), 541-554.[[impact factor 0.612](#)]
10. **Carbon Photovoltaic cell**, Maheshwar Sharon, K.Mukhopadhyay, I. Mukhopadhyay, T. Soga and M. Umeno, *Carbon*, 35,(1997), 863-864. [[impact factor 4.260](#)]
11. **Photovoltaic solar cell from camphoric carbon. A natural Carbon** Maheshwar Sharon, Kalaga Murali Krishna, Tetsuo Soga, Kingsuk Mukhopadhyay, Masayoshi Umeno, *Solar Energy Materials and Solar cells*, 48, 1-4, (1997)25-33.[[impact factor 2.002](#)]
12. **Spongy Carbon nanobeads- a new material**, Maheshwar Sharon, Kingsuk Mukhopadhyay, Kiyoshi Yase, Sumio Iijima, Yoshinori Ando And Xinluo Zhao, *Carbon*, 36(506), (1998), 507-511. [[impact factor 4.260](#)]
13. **Raman scattering investigations of semiconducting diamond like carbon thin films and fibers obtained from camphor** E. Rzepka, A. Lusson, E. A. Ponomarev, K. Mukhopadhyay, Maheshwar Sharon, C. Levy-Clement, *Carbon* 36(5-6) (1998), 587-590.[[impact factor 4.260](#)]
14. **Conducting carbon films from a natural source: characterization and application**, Maheshwar Sharon, Mukul Kumar, P. D. Kichambre, *Super carbon*, MY 111-114, (1998).
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 44. **Pb_{1-x}Ti_xO: a new photoactive phase**, M. Sharon, K. M. Krishna and M. K. Misra, , *J. Mat. Sci. Letts*, 15 (1996) 1084-1087.
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 47. **Electrodeposition and photovoltaic properties of zinc cadmium selenide thin films**, C. Natrajan, G. Nogami, M. Sharon, *Bull. Electrochem.*,12(3-4) 136-140,1996.
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 49. **Surface characterization of anodic films of Pb-Sn alloy electrodes: the effect of Sn on the photoelectrochemical properties**, I. Mukhopadhyay, P. Selvam, Maheshwar Sharon, P. Veluchamy H. Minoura, *Materials Chemistry and Physics*, 49, (1997), 169-173
 50. **Investigation of semiconducting parameters of Pb-Sn alloy oxide-electrolyte interface by Butler Gartner model**, M. Sharon and I. Mukhopadhyay, *Sol. Energy. Mat. Sol. Cells*, 45, (1997), 141-149.
 51. **Application of Gartner model to elucidate parameters adversely affecting photoactivity of thin film PbO in ferro-ferri cyanide electrolyte**, M. Sharon and I. Mukhopadhyay,, *Electrochim. Acta*, 42(1), (1997), 67-72.
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 53. **Electrodeposition of lead sulphide in acidic medium**. Maheshwar Sharon, K. S. Ramaiah, Mukul Kumar, M. Neumann-Spallart, C. Levy-Clement, *J. Electroanal. Chem.* 436,(1997), 49-52.

54. **Non-catalytic displacement plating of photosensitive semiconducting thin films**, Mukul Kumar, M. K. Sharan, Maheshwar Sharon, *Thin Solid Films*, 312 (1998), 139-146.
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59. **Study of photoelectrochemical corrosion of lead oxide in alkaline solution by the rotating ring-disk electrode technique** Maheshwar Sharon, Susanta Ghosh, *J. Solid State Electrochem.* 4, (1999), 52-54.
60. **Effect of $\text{Fe}(\text{CN})_6^{3-}$ /ITO interfacial cathodic current on the efficiency of the photoelectrochemical n-PbO/ $\text{Fe}(\text{CN})_6^{3-}$ /ITO cell**, Maheshwar Sharon, Susanta Ghosh, *J. Applied Electrochem.* 29,(1999), 1015-1017.
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63. **Photodegradation of polyaromatic hydrocarbon over thin film of TiO_2 nanoparticles; a study of intermediate photoproducts**, Bonamali Pal, Maheshwar Sharon, *J. Molecular Catalysis A : Chemical* 160, (2000), 453-460.
64. **Conduction in ZnFeS Solid Solutions** M. Sharon, S. V. Salvi, S. Deulkar, M. A., Madharte, *Transaction SAEST* 36 (3 & 4) 118-119, 2001

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66. **Preparation of non-stoichiometric (Zn,Fe)S chalcogenides and evaluation of their thermal, optical and electrical properties**, M. Shsaron, S. H. Deulkar, C., H. Bhosale, M. Neumann-Spallart, *J. Physical and Chemistry of Solids*, 64 , 539-544 **2003**
67. **Effect of Fe substitution on optical, electrochemical and dielectric properties of (Zn,Fe)S chalcogenide pellets**, M. Sharon, S. H. Deulkar, C. H. Bhosale, *Materials Chemistry and Physics*, 89, 211-215 **2005**
68. **A comparative study of structural, compositional, thermal and optical properties of non stoichiometric (Zn,Fe)S chalcogenide pellets and thin films** S. H. Deulkar, C. H. Bhosale, M. Sharon *J. Physics and Chemistry of Solids*, 65 (2004)1879-1885
69. **Effect of Fe substitution on optical, electrochemical and dielectric properties of (Zn,Fe)S chalcogenide pellets** S. H. Deulkar, C. H. Bhosale, M. Sharon *Materials Chemistry and Physics*, 89(2005)211.
70. **A Study of structural, compositional, thermal and optical properties of spray – deposited non-stoichiometric (Zn, Fe)S thin films.** S. H. Deulkar, C. H. Bhosale, M. Sharon *J. Physics and chemistry of solids(in press)*
71. **Preparation of non-stoichiometric (Zn,Fe)S chalcogenides and evaluation of their thermal, optical and electrical properties**, M. Shsaron, S. H. Deulkar, C., H. Bhosale, M. Neumann-Spallart, *J. Physical and Chemistry of Solids*, 64 , 539-544 **2003**
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74. **A Study of structural, compositional, thermal and optical properties of spray – deposited non-stoichiometric (Zn, Fe)S thin films.** S. H. Deulkar, C. H. Bhosale, M. Sharon *J. Physics and chemistry of solids(in press)*

10.4 SolidState Chemistry

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2. **Electrical conduction and diffusion studies in some H - bonded crystals NH₄H₂PO₄**, M. Sharon, & J.M. Pollock *J. Chem. Phys.* 51, 3604, **1969**.
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4. **Conduction & tritium diffusion studies in single crystal of KHSO₄**, M. Sharon, & A. K. Kalia, *J. Solid State Chem.* 20(1),53-61,**1977**.
5. **Electrical conduction & diffusion studies in NH₄H₂PO₄ single crystals**, M. Sharon, & A. K. Kalia, *J. Solid State Chem.* 23, 3, **1977**.
6. **A general isotherm equation for a monovalent ionic crystal containing impurity in nth valence state**, M. Sharon, & A. K. Kalia *Ind. J. Chem.* 15A, 549 - 551, **1977**.
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9. **An inexpensive zone melting furnace for purification & crystal growth**, M. Sharon, & R.R. Pradhananga, *J. Cryst. Growth* 46,715 - 717, **1979**.
10. **Electrical conduction studies in ferric doped KHSO₄ single crystal**, M. Sharon, &A.K.Kalia*J.SolidState Chem.*31, 295 - 303, **1980**.
11. **Thermoluminescence studies in γ -irradiated lithium chloride single crystals.**, M. Sharon, &R.R.Pradhananga*Phys.State. Sci.* (a) 59, K103,**1980**.
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13. **Preparation & Characterization of iron oxide thin film electrodes** M. Sharon, & B.M. Prasad *Solar Energy Materials* 8, 457-469, **1980**.
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17. **Preparation, characterization and physical properties of mixed Sb_(1-x)Bi_xTeI**, Maheshwar Sharon, Padmakar Kichambre, *Solid State Ionics*, 101-103, 155-159, **1997**.
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10.5 Superconductivity

- 1. Substrate bias effects during in - situ growth of YBa₂Cu₃O_y thin films by rf Magnetron sputtering.** M. Sharon, R. Pinto, J. I. Poothra, S. P. Pai, L. C. Gupta, R. Vijayaraghavan, & Dhananjay Kumar *Physica C*. 175, 310 - 314, **1991**.
- 2. Superconducting behaviour of TlBa_{2-x}La_xCuO_{5-y}.** M. Sharon, A. Sundaresan, A.K. Rajarajan, L. C. Gupta and R. Vijayaraghavan *Physica C*. 178, 193 (**1991**)
- 3. Growth & Microstructural study of rf Magnetron sputtered MgO films on silicon** M. Sharon. R. Pinto, J. I. Poothra, S. C. Purandare, S. P. Pai, C.P.D'Souza, & Dhananjay Kumar, *J. Vac. Sci. Tech. A*. 9(5), 2670 - 2674, **1991**
- 4. Studies of superconducting behaviour of TlBa_{2-x}La_xCuO_{5-y}.** M. Sharon, A. Sundaresan, A. K. Rajarajan, L. C. Gupta and R. Vijayaraghavan. *Physica C*. 178 (**1991**) 193 - 196
- 5. Nuclear Magnetic Resonance of Tl in Superconducting TlBa_{2-x}La_xCuO_{5-y}** M. Sharon, A. Sundaresan, A. K. Rajarajan, Ravi Kumar, L. C. Gupta & R. Vijayaraghavan, *J. Physics (Condensed Matter)* 4(**1992**) 6971 - 6976.
- 6. X-ray Photoelectron Spectroscopic Studies of Valence State of Tl in single Tl - O layers TlBa_{1-x}Sr_xLaCuO₅ (0<x>1)** M. Sharon, A. Sundaresan, C. S. Gopinath, A. S.

- Tamhane, A. K. Rajarajan, S. Subramanian, R. Pinto, L. C. Gupta & R. Vijayaraghavan. *Phys. Rev. B* 46, 6622 (1992)
7. **A new contact conductance measurement technique for metal - HTSC film contact.** Maheshwar Sharon, Prakash R. Apte, Dhananjay Kumar, Richard Pinto, L. C. Gupta and R. Vijayaraghavan. *IEEE Trans on Appl Supercond* Vol 2(3) 176 - 180, 1992.
 8. **Frequency shifts of optical phonons due to size-effect induced charge transfer in $TiBa_{1-x}Sr_xLaCuO_5$** M. Sharon, T. Mertelj, A. Sundaresan, L. C. Gupta, D. Mihailovi'c *SolidState Commun.* 88, 271 (1993)
 9. **Synthesis, structure and conductivity of new quaternary chalcogenide $SnBi_4Te_4Se_4$** Maheshwar Sharon & P. D. Kichambare *Solid State Ionics* 62 (1993) 21 - 26
 10. **Superconductivity in $Lu_{1-x}M_xBa_2Cu_3O_{(7-\delta)}$, M= Pr, Tb & Ca,** M. Sharon, K. I. Gnanasekar, R. Pinto, A. S. Tamhane, L. C. Gupta and R. Vijayaraghavan, *Physica C. (Superconductivity)* 219, 183 (1994)
 11. **Superconductivity in thin films of $M_{0.5}Ca_{0.5}Ba_2Cu_3O_{(7-\delta)}$, M = Lu, Tb, & Th, Superconductivity in $Lu_{1-x}M_xBa_2Cu_3O_{(7-\delta)}$, M= Pr, Tb & Ca** M. Sharon, K. I. Gnanasekar, R. Pinto, A. S. Tamhane, L. C. Gupta and R. Vijayaraghavan *Physica C. (Superconductivity)* 219, 402 (1994)
 12. **Magnetic & Superconducting properties of $TiSr_2Ca_{1-x}R_xCu_2O_7$ (R = Gd, x = 0.6, 1.0), Ho, Yb (x = 1.0): High T_c (= 3.1K) in a Gd system** M. Sharon, A. Sundaresan, R. Vijayaraghavan *Phys. Review B.* 49 (1994)
 13. **Possible overdoping in $TiSrLaCuO_5$ and superconductivity in $TiBaLaCuO_5$ by isovalent cation substitution.** M. Sharon, A. Sundaresan, R. Vijayaraghavan, et.al. *Phys. Rev. B.* 49 13127 (1994).
 14. **Transport properties of Sb_2O_3 doped laser ablated $YBa_2Cu_3O_{7-x}$,** M. Sharon, M. Murugesan, R. Pinto, S. P. Pai, P. R. Apte and L. C. Gupta, *Physica C*, 234 (1994) 339.
 15. **Stabilization of superconducting $TbSr_2Cu_{2.85}Re_{0.15}O_{7+x}$ compound and valence state of terbium,** M. Sharon, M. Murugesan, R. Pinto, S. P. Pai, P. R. Apte and L. C. Gupta, M. S. R. Rao, C. S. Gopinath and S. Subramanian, *Appl. Phys. Lett.* 67 (1995) 2711.

10.6 Nuclear and Radiochemistry

1. **Study of some chlorine & bromine symmetrical nucleophilic exchange reactions.** M. Sharon *Ind. J. Chem.* 7, 465, 1969.
2. **Chemical effect of nuclear transformation of ^{82}Br in some organic compounds.** M. Sharon *Ind. J. Chem.* 8, 828, 1970.
3. **Chemical behaviour of recoil ^{128}I atom in organic solution: chlorobenzene and 1 - Chloro - 2: 4 - dinitrobenzene-11** M. Sharon *J. Univ. Poona Sci. Tech.* 50, 37 - 44 1977.
4. **Unsymmetrical nucleophilic aromatic substitution reaction - 11 reaction of methoxides ions with 1 Chloro-2: 4-dinitrobenzene.** M. Sharon & D.D. Dhavale *Natl. Acad. Sci. letters* vol-3, (3), 78-82, 1980.
5. **Chemical effect of nuclear transformation of ^{32}P in oxyanion systems.** M. Sharon, & V. J. Robinson *J. Univ. Poona. Sci. Tech.* 54, 1 - 4, 217 - 228, 1981.

6. **Chemical effect of nuclear transformation of ^{128}I atoms in some aromatic substituted compounds-111.** M. Sharon, & R. S. Birajdar J. *Univ. Poona Sci. Tech.* 54,217 - 288, **1981**.
7. **Chemical behaviour of (n, γ) recoiled iodine atom in some aromatic substituted compounds - IV** M. Sharon, & R. S. Birajdar J. *Univ. Poona Sc. Tech.* 54, 1 - 4, 229 - 246, **1981**.

10.7. Solar Energy

1. **Fabrication and performance evaluation of a photovoltaic/thermal hybrid system,** S. V. Sudhakar, Maheshwar Sharon, *J. Solar Energy Soc.*, \$(1), 1-7, **1994**.

11.1 Conferences - National & International

On the average 3-4 International and 4-5 National conferences have been attended either for presenting poster paper, oral presentation or for giving Invited/Plenary lectures. List of International/national conferences attended in the last five years is given here.

1. Ph.D. / M.Tech thesis supervised

Summary of area of specialization distribution

Solid State Chemistry	04
Nuclearchemistry	01
Electrochemistry/Photoelectrochemical cell	12
Water Pollution	01
Superconductivity	04
Carbon	16
Electric vehicle	01
Total (as on 7th Feb 2014)	39

12.1 Details distribution Ph.D. thesis (area of specializationwise)

12.1.1 SolidState Chem.

1. Title: **Electrical conduction and diffusion studies in crystals containing H-bond.**
 Name Dr. A. K. Kalia
 Year of award 1975
 University PuneUniversity
2. Title: **Preparation, electrical conduction and thermoluminescence studies of LiCl single crystals.**
 Name Dr. Raja Ram Pradhananga
 Year of award 1980
 University Pune University
3. Title: **Studies on preparation and characyterisation of ZnFeSpellets and thin films**

Name Dr. S. H. Deulkar
Year of award 2005
University Shivaji University, Kolhapur

4 Title: **Synthesis & Electrical properties of SbSI & SbTeI materials & the effect of dopant**

Name: Mr. Harish Kumar Dubey
Year: 2012
University: Solapur University

12.1.2. Nuclearchemistry

1. Title: **Chemical behaviour of (n, γ) recoiled iodine atom in some aromatic substituted iodo-compounds.**

Name Dr.R.S.Birajdar
Year of award 1979
University Pune University

12.1.3 Electrochemistry/Photoelectrochemical cell

- 1 Title: **Study of chargeable photogalvanic solar cell**
Name Dr. Ashwani Sinha (late)
Year of award 1982
University Pune University

2. Title: **A study of photogalvanic and photoelectrochemical solar cells.**
Name Dr. Beni Madhava Prasad
Year 1983
University I.I.T. Bombay

3. Title: **Preparation and characterization of a semiconductor material (WO₃) for the utilization of solar energy.**
Name Dr. M. K. Sharan
Year of award 1984
University I.I.T. Bombay

4. Title: **Investigation on Pb₃O₄ films for the development of photoelectrochemical solar cell.**
Name Dr. Sudhir Kumar
Year of award 1986
University I.I.T. Bombay

5. Title: **Photoelectrochemical studies of tin chalcogenide and their application in electrochemical photovoltaic cells.**
Name Dr. K. Basavaswaran
Year of award 1987
University I.I.T. Bombay

6. Title: **Preparation and characterization of new low-band gap inexpensive phosphide semiconductors and studies of their use in electrochemical photovoltaic cell are made.**
Name Dr. G. Tamizhmani
Year of award 1988
University I.I.T. Bombay

7. Title: **Photoelectrochemistry of Chemical Vapour Deposited Iron Oxide**
Name Dr. Venkatesh Sundaram
Year of award 1990
University I.I.T. Bombay

8. Title: **Electrosynthesis of lead oxides by anodic oxidation of lead in alkaline solution:its characterization and photoelectrochemical properties.**

Name Dr. P. Veluchamy
Year of award 1992
University I.I.T. Bombay

9. Title: **Deposition of $Zn_{(1-x)}M_xSe$ (M=Cd or Hg) thin films and their (electrochemical) photovoltaic properties**

Name Dr. C. Natrajan
Year of award 1993
University I.I.T. Bombay

10. Title: **Theoretical and experimental determination of the band gap for some noncorrosive transition metal oxides for their use in photoelectrochemical solar cells.**

Name Dr. K. M. Krishna
Year of award 1995
University I.I.T. Bombay.

11. Title: **Photoelectrochemical studies of electrochemically synthesized lead and doped lead oxide thin film**

Name Dr. I. Mukhopadhyay
Year of award 1996
University I.I.T. Bombay

12. Title: **Electrochemical synthesis of oxygen deficient α -PbO thin film and the study of its interfacial photoelectrochemistry**

Name Dr. Susanta Ghosh
Year of award 1998
University I.I.T. Bombay

12.1.4 Water Pollution:

1. Title: **Photocatalytic Degradation of Toxic organic pollutants and photokilling of pathogenic bacteria present in wastewater.**

Name Dr. Bonamali Pal
Year of award 1997
University I.I.T. Bombay

12.1.5 Superconductivity

1. Title: **Electrical, Structural and Chemical properties of Laser ablated $YBa_2Cu_3O_{(7-x)}$ thin films**

Name Dr. Dhananjay Kumar
Year of award 1994
University I.I.T. Bombay

2. Title: **Structural, superconducting and magnetic properties of single Tl-O-layered copper oxides**
 Name Dr. A. Sundaresan
 Year of award 1994
 University I.I.T. Bombay.
3. Title: **Superconducting properties of thin films and bulk of $\text{Lu}_{(1-x)}\text{M}_x\text{Ba}_2\text{Cu}_3\text{O}_{(7-\delta)}$, M = Pr, Tb, Th & Ca**
 Name Dr. K. Gnanasekar
 Year of award 1994
 University I.I.T. Bombay
4. Title: **Structure-superconducting correlation in $\text{RESr}_2\text{Cu}_{(3-x)}\text{M}_x\text{O}_z$ RE = Rare earth; Y and M = Re, Mo & W and studies on laser ablated thin films of $\text{La}_{(1-x)}\text{Pr}_x\text{Ba}_2\text{Cu}_3\text{O}_{7.8}$**
 Name Dr. M. Murugesan
 Year of award 1996
 University I.I.T. Bombay

Carbon

1. Title: **Hydrogen-Oxygen fuel cell and energy storage by carbon nano materials**
 Name Dr. Arup Kumar Chatterjee
 Year 2004
 University I.I.T. Bombay
2. Title: **Preparation, characterization and Application of Amorphous carbon for photovoltaic solar cell**
 Name Dr. Dillip Kumar Mishra
 Year 2005
 University I.I.T. Bombay
3. Title: **Synthesis and application of carbon nanomaterials from plant based precursors**
 Name: Sunil Parasnath Vidydevi Bhardwaj
 Year: 2008
 University: Mumbai University
4. Title: **Synthesis, Characterization and microwave absorption studies of carbon nano-material.**
 Name Dattatraya E. Kshirsagar
 Year : 2009
 University: Shivaji University, Kolhapur

5. Title **Hydrogen storage using carbon nanomaterials synthesized from plant precursors**
 Name: Mr. Jayabhaya Sandesh
 Year: 2009
 University: Babsaheb Ambedaker Technical University, Lonare

6. Title **Development of super capacitor using carbon nano materials synthesized from plant based**
 Name: Vilas Ramdas Khairnar
 Year: 2010
 University: University of Mumbai

7. Title **Conversion of waste Polythene plastic to carbon nano material (CNM) and burnable wax by chemical vapour deposition(CVD) method and characterization of the products**
 Name Pravin Vitthal Jagdale
 Year 2010
 University Solapur University

8. Title **Use of carbon nanomaterials as drug carriers**
 Name: Ms. Seema K Parihar
 Year: 2011
 University: University of Mumbai

9. Title **Synthesis of carbon nanomaterials and wax from plastic and its Application**
 Name Neeraj Prakash Vimal Mishra
 Year 2012
 University University of Mumbai

10. Title **Role of raw material composition in yielding carbon nano materials by carbon vapour deposition and study the uptake of Arsenic dissolved in water by carbon nano material**
 Name Ms Jayashri Santosh Shukla
 Year 2012
 University Solapur University

11. Title **Use of nanomaterial as a catalyst for conversion of plant product into carbon nano materials**
 Name Mrs. Suman D Tripathi
 Year 2012
 University Solapur University

12. Title Synthesis of carbon nano materials from plant based precursor and study their hydrogen adsorption properties

Name Mr. Bholanath Tarakdas Mukherjee
Year 2012
University University of Mumbai

13. Title Preparation of hydrophilic/Hydrophobic Nanopolymers for loading drug molecules

Name: Mrs. Manisha G Khemani
Year: 2013
University: University of Mumbai

14. Title Chemical characterization of Phytochemicals found in rare medicinal Plant

Name Mr Sudhakar Govind More
Year 2013
University Solapur University

15.Barhate

16 Karn

12.1.7 Electric vehicle

1 Title: A novel drive system for battery operated moped

Name Dr. Uday Kumar
Year of award 2000
University I.I.T. Bombay

12.20 M.Tech thesis supervised

Summary of area of specialization distribution

Solar Energy 3

Electric-vehicle 2

12.2.1. Solar Energy

1 Title: A Design & fabrication of a Solar Furnace

Name Mr. S. Omkarmurthy
Year of award 1983
University I.I.T. Bombay

2. Title: Performance evaluation of a hybrid photovoltaic panel

Name Mr. S. V. Sudhakar
Year of award 1988
University I.I.T. Bombay

3. Title: Design fabrication & testing of a low cost multipurpose Solar Dryer

Name Mr. Grish V. Kanole
Year of award 1993
University I.I.T. Bombay

12.2.2. Electric-vehicle

4. Title: Feasibility study and fabrication of a disc motor and chopper for a battery driven moped

Name Mr. Amol Sudhakar Kulkarni
Year of award 1991
University I.I.T. Bombay

5. Title: Study and fabrication of an AC drive system for a battery driven moped.

Name Mr. Subrata Saha
Year of award 1993
University I.I.T. Bombay

6. Title: Development of carbon photovoltaic solar cell

Name Major Sameer Jain
Year of award 1 997
University I.I.T. Bombay