

Biodata

Name: Bulusu Venkata Sarada
Qualification: M. Sc., M. Phil (Physics), Ph. D.
Designation: Scientist 'E'
Contact Information: Centre for Solar Energy Materials (CSEM)
Phone: +91-40-24452448
E-mail: sarada@arci.res.in
Experience: Lecturer in Physics 1992-1997
JSPS Post Doctoral Fellow at The University of Tokyo, Japan
2000-2002
JST Post-doctoral Researcher under Pre-venture project at The
University of Tokyo, Japan 2002-2003
Woman Scientist (WOS-A) under DST scheme 2006-2009
Scientist 'D' ARCI, Hyderabad 2009-2013
Scientist 'E' ARCI, Hyderabad 2013 - present

Research Areas of Interest:

- CIGS and CZTS based Solar Cells by using electrodeposition technique.
- Electrochemical Synthesis of Nanostructured Materials, Graphene-based nanocomposites and their Morphological, Mechanical and Electrical Characterization
- Synthesis of Graphene by electrochemical anodization.
- Electrochemical Synthesis of TiO₂ based Nanostructured materials for photovoltaic applications.
- Synthesis and Applications of Conducting diamond Thin-films and microelectrodes.

List of Journal Publications:

1. **Sarada, BV**; Rao, TN; Tryk, DA; Fujishima, A, "Electrochemical characterization of highly boron-doped diamond microelectrodes in aqueous

- electrolyte” JOURNAL OF THE ELECTROCHEMICAL SOCIETY, 146 (4): 1469-1471 1999.
2. Fujishima, A; Rao, TN; Popa, E; **Sarada, BV**; Yagi, I; Tryk, DA, “Electroanalysis of dopamine and NADH at conductive diamond electrodes” JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 473 (1-2): 179-185 1999
 3. **Sarada, BV**; Rao, TN; Tryk, DA; Fujishima, A, “Electrochemical detection of serotonin using conductive diamond electrodes” CHEMISTRY LETTERS, (11): 1213-1214 1999.
 4. **Sarada, BV**; Rao, TN; Tryk, DA; Fujishima, A, “Electroanalytical applications of conductive diamond electrodes” NEW DIAMOND AND FRONTIER CARBON TECHNOLOGY, 9 (5): 365-377 1999
 5. **Sarada, BV**; Rao, TN; Tryk, DA; Fujishima, A, “Electrochemical oxidation of histamine and serotonin at highly boron doped diamond electrodes” ANALYTICAL CHEMISTRY, 72 (7): 1632-1638 1 2000
 6. Chailapakul, O; Popa, E; Tai, H; **Sarada, BV**; Tryk, DA; Fujishima, A, “The electrooxidation of organic acids at boron-doped diamond electrodes” ELECTROCHEMISTRY COMMUNICATIONS, 2 (6): 422-426 2000
 7. Rao, TN; **Sarada, BV**; Tryk, DA; Fujishima, A, “Electroanalytical study of sulfa drugs at diamond electrodes and their determination by HPLC with amperometric detection” JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 491 (1-2): 175-181 2000
 8. Spataru, N; **Sarada, BV**; Popa, E; Tryk, DA; Fujishima, A, “Voltammetric determination of L-cysteine at conductive diamond electrodes” ANALYTICAL

CHEMISTRY, 73 (3): 514-519 2001

9. Terashima, C; Rao, TN; **Sarada, BV**; Tryk, DA; Fujishima, A, "Electrochemical oxidation of chlorophenols at a boron-doped diamond electrode and their determination by high-performance liquid chromatography with amperometric detection" ANALYTICAL CHEMISTRY, 74 (4): 895-902 2002
10. Rao, TN; Loo, BH; **Sarada, BV**; Terashima, C; Fujishima, A, "Electrochemical detection of carbamate pesticides at conductive diamond electrodes" ANALYTICAL CHEMISTRY, 74 (7): 1578-1583 2002
11. Kondo, T; Einaga, Y; **Sarada, BV**; Rao, TN; Tryk, DA; Fujishima, A, "Homoepitaxial single-crystal boron-doped diamond electrodes for electroanalysis" JOURNAL OF THE ELECTROCHEMICAL SOCIETY, 149 (6): E179-E184 2002
12. Ivandini, TA; **Sarada, BV**; Terashima, C; Rao, TN; Tryk, DA; Ishiguro, H; Kubota, Y; Fujishima, A, "Electrochemical detection of tricyclic antidepressant drugs by HPLC using highly boron-doped diamond electrodes" JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 521 (1-2): 117-126 2002
13. Spataru, N; **Sarada, BV**; Tryk, DA; Fujishima, A, "Anodic voltammetry of xanthine, theophylline, theobromine and caffeine at conductive diamond electrodes and its analytical application" ELECTROANALYSIS, 14 (11): 721-728 2002
14. Chailapakul, O; Siangproh, W; **Sarada, BV**; Terashima, C; Rao, TN; Tryk, DA; Fujishima, A, "The electrochemical oxidation of homocysteine at boron-doped diamond electrodes with application to HPLC amperometric detection" ANALYST, 127 (9): 1164-1168 2002

15. Olivia, H; **Sarada, BV**; Shin, D; Rao, TN; Fujishima, A, "Selective amperometric detection of dopamine using OPPy-modified diamond microsensor system" ANALYST, 127 (12): 1572-1575 2002
16. Shin, DC; **Sarada, BV**; Tryk, DA; Fujishima, A, "Application of diamond microelectrodes for end-column electrochemical detection in capillary electrophoresis" ANALYTICAL CHEMISTRY, 75 (3): 530-534 2003
17. Terashima, C; Rao, TN; **Sarada, BV**; Fujishima, A, "Amperometric detection of oxidized and reduced glutathione at anodically pretreated diamond electrodes" CHEMISTRY LETTERS, 32 (2): 136-137 2003
18. Terashima, C; Rao, TN; **Sarada, BV**; Spataru, N; Fujishima, A, "Electrodeposition of hydrous iridium oxide on conductive diamond electrodes for catalytic sensor applications" JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 544: 65-74 2003
19. Terashima, C; Rao, TN; **Sarada, BV**; Kubota, Y; Fujishima, A, "Direct electrochemical oxidation of disulfides at anodically pretreated boron-doped diamond electrodes" ANALYTICAL CHEMISTRY, 75 (7): 1564-1572 2003
20. Rao, TN; Ivandini, TA; Terashima, C; **Sarada, BV**; Fujishima, A, "Applications of bare and modified diamond electrodes in electroanalysis" NEW DIAMOND AND FRONTIER CARBON TECHNOLOGY, 13 (2): 79-88 2003
21. Ivandini, TA; **Sarada, BV**; Terashima, C; Rao, TN; Tryk, DA; Ishiguro, H; Kubota, Y; Fujishima, A, "Gradient liquid chromatography of leucine-enkephalin peptide and its metabolites with electrochemical detection using highly boron-doped diamond electrode" JOURNAL OF CHROMATOGRAPHY B-ANALYTICAL TECHNOLOGIES IN THE BIOMEDICAL AND LIFE SCIENCES, 791 (1-2): 63-72 2003.

22. Ivandini, TA; **Sarada, BV**; Rao, TN; Fujishima, A, "Electrochemical oxidation of underivatized-nucleic acids at highly boron-doped diamond electrodes" ANALYST, 128 (7): 924-929 2003
23. Olivia, H; **Sarada, BV**; Honda, K; Fujishima, A, "Continuous glucose monitoring using enzyme-immobilized platinized diamond microfiber electrodes" ELECTROCHIMICA ACTA, 49 (13): 2069-2076 2004.
24. Sarada B. V.; Pavithra, CLP; Ramakrishna M.; Rao, TN.; Sundararajan G., "Highly (111) textured copper foils with high hardness and high electrical conductivity by pulse reverse electrodeposition" ELACTROCHEMICAL AND SOLID STATE LETTERS, 13(6): d40-d42 2010.
25. Chakravarty, Dibyendu; Sarada, B. V.; Chandrasekhar, S. B., Saravanan, K., Rao, T. N., A novel method of fabricating porous silicon, MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING 2011, Volume: **528** Issue: **25-26** Pages: **7831-7834**
26. Sarada B. V, Radha L., Rao T. N., Surface Plasmon Resonance Enhanced Photoelectrochemical Studies at Gold-modified TiO₂ Nanotube Arrays. Nanotech Insights, January, 2012
27. **B. V. Sarada**, Ch. L. P. Pavithra, M. Ramakrishna and Tata N. Rao, "Nanostructured copper foils by Pulse Reverse Electrodeposition for Interconnect Applications", NANOTECH INSIGHTS, 2013, Volume 4, Issue 1 Page
28. Sreekanth Mandati; **Sarada, Bulusu V.**; Dey, Suhash R and Shrikant V. Joshi, Pulsed Electrodeposition of CuInSe₂ Thin Films with Morphology for Solar Cell Applications JOURNAL OF THE ELECTROCHEMICAL SOCIETY 2013, Volume: **160** Issue: **4** Pages: **D173-D177**

29. Sreekanth Mandati, **Bulusu V. Sarada**, Suhash R. Dey, and Shrikant V. Joshi, Improved photoelectrochemical performance of Cu(In,Ga)Se₂ thin films prepared by pulsed electrodeposition, *J. Renewable Sustainable Energy* 5, 031602 (2013).
30. Sreekanth Mandati, **Bulusu V. Sarada**, Suhash R. Dey, Shrikant V. Joshi, Two-step Pulsed Current Electrodeposition of CIGS Absorber Layers for Thin Film Solar Cells, *Materials Letters*, 118, 2014, 158.
31. Pavithra Ch.L.P., **Sarada B. V.**, Rajulapati K. V., Rao T. N., Sundararajan G., A New Electrochemical Approach for the Synthesis of Copper-Graphene Nanocomposite Foils with High Hardness, *SCIENTIFIC REPORTS/Nature Publishing Group*, 4, Article No.4049, 2014.
32. Sreekanth Mandati, **Sarada B. V.**, Suhash R. Dey, Shrikant V. Joshi Photoelectrochemistry of Cu(In,Ga)Se₂ thin-films fabricated by sequential pulsed electrodeposition, *Journal of Power Sources*, 273, 149-157 2014.
33. Sreekanth Mandati, **Sarada B. V.**, Suhash R. Dey, Shrikant V. Joshi Cu(In,Ga)Se₂/CdS heterojunction with enhanced photoelectrochemical performance and stability – Accepted ‘Electronic Materials Letters’
34. Effect of Graphene Content on the Mechanical and Electrical behavior of Graphene Reinforced Copper Nanocomposites Prepared by Pulse Reverse Electrodeposition, *Chokkakula L. P. Pavithra, Bulusu V. Sarada , Koteswararao V. Rajulapati , Tata N. Rao, G. Sundararajan (Under Review)*
35. Efficient and Rapid Shortening of Carbon Nanotubes with High Quality by Ultrasonication in Ethanol *Chokkakula L. P. Pavithra, Koteswararao V Rajulapati, Tata N. Rao, Bulusu V.Sarada (Under review)*
36. Large Scale synthesis of Graphene by Electrochemical exfoliation in a mild aqueous electrolyte *Chokkakula L. P. Pavithra, Koteswararao.V. Rajulapati, Tata N. Rao, Bulusu V. Sarada (to be submitted)*

37. Ch. L. P. Pavithra, Bulusu V. Sarada, M. Ramakrishna, Tata N. Rao, R. Koteswara Rao, G. Sundararajan, Texture-property correlation in copper foils with enhanced mechanical and electrical properties prepared by pulse reverse electrodeposition, To be Submitted.

List of Patents:

1. Test-substance concentration measuring method e.g. for urine involves measuring electric current difference corresponding to oxidation/reduction reaction of either ascorbic acid/ascorbic and uric acid to measure uric acid concentration

Patent Number: **JP2004101437-A; JP3703787-B2** Publication date: 2004-04-02

2. Detection method of inspection compound, and diamond electrode and device used therefore. Patent Number: JP2003121410, Publication date: 2003-04-23

3. Electrochemical Assay using an electroconductive diamond coated electrode, and electrochemical assay system based thereon. Patent Number: EP1055926A2, EP1055926A3, WO200198766-A; WO200198766-A1; AU200174581-A; JP2002504478-X

4. Thiol concentration measuring method and sensor used for the same, **JP2002189016A2**. Publication date: 2002-07-05

5. Method for determining concentration of xanthin type compound and sensor for use therein. **WO0198766A1**, Publication date: 2001-12-27

6. Density measuring method e.g for chemical samples

Patent Number: **EP1055926-A; EP1055926-A2; JP2001021521-A; JP2001050924-A; CN1278063-A; JP2001091499-A; JP2001147211-A; KR2001020722-A; KR360991-**

B; TW528867-A; JP4390345-B2

7. NOVEL COPPER FOILS HAVING HIGH HARDNESS AND CONDUCTIVITY AND A PULSE REVERSE ELECTRODEPOSITION METHOD FOR THEIR PREPARATION

Patent Application No. 1028/DEL/2009

8. An Improved method of preparing bulk porous silicon compacts. Indian patent filed. **IN201100912-I1**

Conference Proceedings:

1. Electroanalytical applications of bare and modified diamond electrodes, Fujishima, A; Rao, TN; Sarada, BV

Conference: **7th International Symposium on Diamond Materials** Location: **SAN FRANCISCO, CA** Date: **SEP 07, 2000**, DIAMOND MATERIALS VII, PROCEEDINGS Book Series: **ELECTROCHEMICAL SOCIETY SERIES** Volume: **2002** Issue: **25** Pages: **127, 2001**

2. Electrochemical oxidation of sulfa drugs at boron-doped diamond electrodes Rao, TN; Sarada, BV; Tryk, DA; Fujishima A..

Conference: **6th International Symposium on Diamond Materials at the 196th Meeting of the Electrochemical-Society** Location: **HONOLULU, HI** Date: **OCT 17-22, 1999**

Source: DIAMOND MATERIALS VI Book Series: **ELECTROCHEMICAL SOCIETY SERIES** Volume: **99** Issue: **32** Pages: **507-511** Published: **2000**

3. Electrochemical oxidation of histamine and serotonin at highly boron-doped diamond electrodes, Sarada, BV; Rao, TN; Tryk, DA; Fujishima A.

Conference: **6th International Symposium on Diamond Materials at the 196th Meeting of the Electrochemical-Society** Location: **HONOLULU, HI** Date: **OCT 17-22, 1999**

Source: DIAMOND MATERIALS VI Book Series: **ELECTROCHEMICAL SOCIETY SERIES** Volume: **99** Issue: **32** Pages: **502-506** Published: **2000**

4. Pulse electrodeposition and characterization of CIGS thin-films for solar applications. Sreekanth Mandati, **Bulusu V. Sarada**, Suhash R. Dey and Shrikant V. Joshi, (2013), **ELAC-2013**, Fifth ISEAC Triennial International Conference on Advances and Recent Trends in Electrochemistry, Hyderabad,

Contribution to Books:

List of Book chapters:

1. Sarada B V, Terashima, C, Ivandini T A, Rao, T N, Fujishima, A, “Diamond Electrochemistry”, Elsevier B V, 2005
2. Olivia, H, **Sarada, B V**, Rao, T N, Fujishima, A, “Diamond Electrochemistry”, Elsevier B V, 2005

Awards/Honours:

- Student Fellowship/ Japan Society for the Promotion of Science, Japan (1999).
- Post Doctoral Fellowship/ Japan Society for the Promotion of Science, Japan (2000).
- Fellowship under Woman Scientist Scheme, Department of Science and Technology (DST), India (2006)

Affiliation to Professional Societies:

1. Member of ‘The Electrochemical Society’