CURRICULUM VITAE

1. Name in Full: : Jayasundera Bandara

2. Sex: Male

3. Date of Birth:: 30th July 1963

4. Marital Status: Married, Three children

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: Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka

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6. EDUCATIONAL QUALIFICATIONS (From University Level)

I.	Degree Obtained	Graduateship in Chemistry, 1988
	Subjects	Chemistry (Major) Biology/Mathematics for Chemistry
	Institute	Institute of Chemistry, Sri Lanka
II	Degree Obtained	M. Phil. Degree, 1991
	Institute	University of Peradeniya, Sri Lanka
	Subject	Chemistry/Photochemistry
	Title of the Thesis	Dinitrogen fixation on semiconductor catalysts
III	Degree Obtained	Postgraduate Diploma in Chemistry & Chemical Engineering, 1992
	Institute	Tokyo Institute of Technology, Japan
	Subject	Chemistry/Catalysis
	Title of the Thesis	Catalysts preparation by CVD method and their catalytic activity for methanol oxidation
IV	Degree Obtained	Ph. D. Degree, 1998
	Institute	Swiss Federal Institute of Technology, Switzerland
	Subject	Chemistry/Photochemistry
	Titled of the Thesis	Degradation and Photodegradation of azo-Dyes and Chlorophenols mediated by iron oxides

7. PRESENT OCCUPATION : Senior Research Fellow, Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka

8. Present Research at IFS :

As from 1st January 99, I joined the Institute of Fundamental Studies, Sri Lanka in Photochemistry group. The research project involves the study of photochemical and photoelectrochmical aspects of semiconductor based composite systems in order to achieve efficient charge separation in Photoelectochemical (PEC) cells and photocatalysis. Sustainable production of energy from renewable sources is highly encouraged and one main emphasis in this direction is on solar energy conversion processes delivering heat, electricity and chemical fuel.

(a) Conversion of solar energy to electricity: The light is absorbed by the dye and an electron is injected into the nanocrystalline TiO_2 semiconductor. The dye is recycled by a redox couple which is in the electrolyte in contact with the counter-electrode. Optimization of the cell parameters, colloids used for the preparation of the films, the thickness of the film, new dyes, the technique of absorption, the composition of the electrolyte, variation of the film thickness to improve scattering of light by the film, preparation of sealed cells, electrical contact. Development of the molten salts as solvent for the solar cells.

(b) Conversion of solar energy to chemical energy: The project concerns photolytic conversion of water to hydrogen and oxygen. The studies are based on sunlight induced photocatalytic reactions of finely divided particulate semiconductor-based systems. Hydrogen is an important energy vector for the future economy. Characteristic features of this fuel are its non-pollutant nature and high calory capacity. The semiconductors used are refractory oxides such as TiO_2, WO_3, Fe_2O_3 and alkaline earth titanates. These are combined with redox catalysts for the reduction and oxidation of water. The principal advantages of the system are the cost and the simplicity of their application. Photochemical generation of

Postdoctoral Research in USA: Surface vibrational spectroscopy has always been of great interest to researchers in surface science because it only permits identification of surface molecular species but also provides information on surface structure. But the commonly available techniques are rather limited in their abilities. Recently second-order nonlinear optical spectroscopy was found to posses many advantages over commonly available techniques.

The interaction of water with oxide surfaces has received considerable attention because of its prominence in geochemistry, atmospheric chemistry and catalysis. However the details of the interaction of water with oxides are till in debate due to limited abilities to study surface properties by common techniques. In this research project we study of interaction of water with oxide surface with the use of **SFG (Sum Frequency Generation) spectroscopy**.

9. Fellowships Obtained

1. Fellowship given by the Institute of Fundamental Studies, Sri Lanka.
2. UNESCO/Japan Fellowship
3. Swiss Government Fellowship
4. Postdoctoral Fellowship, USA
5. Humboldt Fellowship, Germany

10. Postdoctoral Research and other working experience after PhD

1. Clemson University, Department of Chemistry, Clemson, USA. (2000)

2. Tufts University, Department of Chemistry, Sommerville, USA. (2001-2002)
3. Swiss Federal Institute of Technology, Switzerland, (2004/Nov – 2005/March) as an invited scientist

11. Referees

(1) Dr. J. Kiwi, Dept. of Chemistry, EPFL, 1015 Lausanne, Switzerland.
Tel: 0041 21 693 2621, Email: john.kiwi@epfl.ch

(2) Prof. M.J. Shultz, Department of Chemistry, Tufts University, Somerville USA.
Tel: 001 617 627 3477, Email: mary.shultz@tufts.edu

(3) Prof. O.A. Ileperuma, Dept. of Chemistry, Univ. of Peradeniya, Peradeniya, Sri Lanka.
Tel: 0094 8 88693, Email: oliver@pdn.ac.lk

(4) Prof. M. Thelakkat, Advanced Functional Polymers, University of Bayreuth, 95447 Bayreuth, Germany.
Tel: 0049 921 55 3108, Email: mukundan.thelakkat@uni-bayreuth.de

12. Teaching interest

Materials science, physical chemistry and inorganic chemistry

RESEARCH PUBLICATIONS:

1. Tennakone, K., **Bandara, J.M.S**., Thaminimulle, C.T.K. and Ileperuma, O.A. (1991): Photoreduction of dinitrogen to ammonia by ultra fine particles of FeOH formed by photolysis of iron (II) bicarbonate. Langmuir, **7**, 2166-2168.

2. Tennakone, K., Jayatilake, W.W.D., Kiridena, W.C.B., Dissanayake, M.A.K.L and **Bandara, J.M.S**. (1991): Photolysis of p-type b-CuCNS dispersion in aqueous medium. J. Photochem. Photobiol. A: Chem., **60**, 229-232.

3. Tennakone, K., Ileperuma, O.A., **Bandara, J.M.S**., Thaminimulle, C.T.K. and Ketipearachchi, U.S. (1991): Simultaneous reductive and oxidative photocatalytic nitrogen fixation on hydrous ferric oxide loaded Nafion films submerged in aerated water. J. Chem. Soc. Chem. Commun., 579-580.

4. Tennakone, K., Ileperuma, O.A., **Bandara, J.M.**S. and Thaminimulla, C.T.K. (1991): Photoreduction of nitrogen dissolved in water with hydrous oxides of Samarium (III) and Europium (III). Solar Energy Materials, **22**, 319-325.

5. Tennakone, K., **Bandara, J.M.S**. and Tilakaratne C.T.K. (1992): Photooxidation of nitrogen to nitrite using ZnO-Fe_2O_3 catalyst. Photochem. Photobiol. A: Chem., **66**, 375-378.

6. Tennakone, K., **Bandara, J.M.**S. and Kiridena, W.C.B. (1992): TiO_2 and WO_3 semiconductor particles in contact: Photochemical reduction of WO_3 to the non-stoichiometric blue form. Semiconductor Science and Technology, **7**, 423-424.

7. Tennakone, K., Thaminimulle, C.T.K. and **Bandara, J.M.S**. (1992): Nitrogen photoreduction by vanadium (III) substituted hydrous ferric oxide. J. Photochem. Photobiol. A: Chem., **68**, 131-135.

8. **Bandara, J**., Kiwi, J., Pulgarin, C and Pajonk, G.M. (1996): Cu-oxide activation of thermal and light induced processes involving nitrophenol type compounds. Relevance to biological related processes in the natural cycle. Environ. Sci. Tech., **30**, 1261-1267.

9. **Bandara, J**., Humphry Baker, R., Kiwi, J. and Pulgarin, C. (1996): Oxidative Degradation of Fluorescence of Non-biodegradable Brightener via Titania Suspensions induced Visible Light. Implications for the Natural Cycle. J. Advanced Oxidation Technologies, **1**, 126-132.

10. Pulgain, C., Schwitzguebel, J-P., Peringer, P., Pajonk, G.M., **Bandara,** J. and Kiwi, J. (1996): Abiotic degradation of Atrazine on zero valent iron activated by visible light. J. Advanced Oxidation Technologies, **1**, 94-99.

11. **Bandara, J**., Morrision, C., Kiwi, J. and Pulgarin, C. (1996): Degradation/decoloration of concentrated solutions Orange II. Kinetics and quantum yield for sunlight induced reactions via Fenton reagents. J. Photochem. Photobiol A: **99**, 57-66.

12. Morrision, C., **Bandara, J.** and Kiwi, J. (1996): Sunlight Induced Decoloration/Degradation of Non-biodegradable Orange II dye by Advanced Oxidation Technologies in Homogeneous and Heterogeneous media. Advanced Oxidation Technologies, **1**, 160-168.

13. **Bandara, J**., Kiwi, J., Pulgarin, C. and Pajonk, G.M. (1996): Catalytic Oxidation and Photo-oxidation of Nitrophenols by Strong Oxidants Generated in situ via CuO-Aerogel. J. Mole. Catal, **111**, 333-339.

14. **Bandara, J**., Pulgarin, C., Peringer, P. and Kiwi, J. (1996) Photochemical Biological Integrated Flow Reactor for the Treatment of Recalcitrant Pollutants. In: TiO_2 Photocatalytic Purification and Treatment of Water and Air , 51.

15. **Bandara, J**., Nadtochenko, V and Kiwi, J. (1997): Dynamics of Oxidant Addition as an Important Parameter in the Modelization of Dye Mineralization (Orange II) via Advanced Oxidation Technologies. Water Sci. and Technol., **35**, 87-93.

16. **Bandara, J**., Pulgarin, C., Peringer, P. and Kiwi, J. (1997): Chemical Photoactivated Coupling of Biological Homogeneous Degradation of p-Nitrotoluene sulfonic Acid in a Flow Reactor. J. Photochem. Photobiol., A., **111**, 253-263.

17. **Bandara, J**., Herera, F., Kiwi, J. and Pulgarin, C. (1998): Degradation of Concentrated Solution of Non-biodegradable Orange II by Photocatalytic and Electrochemical Methods. J. Chem. Res (S), 234-237.

18. **Bandara, J**., Herera, F., Kiwi, J. and Pulgarin, C. (1998): Degradation of Concentrated Solution on Non-biodegradable Orange II by Photocatalytic and Electrochemical methods. J. Chem. Res (M), 1153-1172.

19. Fernandez, J., **Bandara, J**., Lopez, A., Albers, P and Kiwi, J. (1998): Efficient Photo-assisted catalysis mediated by Fe-ions on Nafion membranes active in the abatement of non-biodegradable azo-dye. Chem. Comm, **14**, 1493-1494.

20. Fernandez, J., **Bandara, J**., Lopez, A. and Kiwi, J. (1999): Photoassisted Fenton Degradation of Non-biodegradable Azo-dye in Fe-free Mediated by Cation Transfer Membranes. , Langmuir, **15**, 185-192.

21. **Bandara, J**. and Kiwi, J. (1999): Fast kinetic Spectroscopy, decoloration and production of H_2O_2 induced by visible light in oxygenated solutions of the azo dye Orange II. New Journal of Chemistry, **7**, 771-729.

22. **Bandara, J**., Kiwi, J. and Mielczarski, J.M. (1999): 1. Molecular Mechanism of Surface Recognition. Azo-dyes Degradation on Fe, Ti and Al-oxides Through Metal Sulphonate Complexex. Langmuir, **22**, 7670-7679.

23. **Bandara, J**., Kiwi, J. and Mielczarski, J.M. (1999): 2. Photosensitized Degradation of Azo-dyes on Fe, Ti and Al-oxides. Mechanism of Charge Transfer During the Degradation Langmuir, 22, 7680-7687.

24. **Bandara, J**. and Tennakone, K. (2000): Multiphoton semiconductor photocatalysis. Solar Energy Materials & Solar Cells, **60**, 361-365.

25. Tennakone, K. and **Bandara, J**. (2001): Photocatalytic activity of dye-sensitized tin(IV) nanocrystalline particles attached to zinc oxide particlws: long distance electron transfer via ballistic transport of electrons across

nanocrystallites. Appl. Catal., A: Gen., **208**, 335-341.

26. **Bandara, J**. and Tennakone, K. (2001): Interparticle charge transfer in dye-sensitized films composed of two kinds of semiconductor crystallites. J. Colloid and Interface Sci., **236**, 375-378.

27. **Bandara, J**., Tennakone, K. and Kiwi, J. (2001): Surface mechanism of molecular recognition between aminophenols and iron oxide surfaces. Langmuir, **17**, 3964-3969.

28. Tennakone, K, **Bandara, J**, Bandaranayake, PKM, Kumara GRA and Konno A. (2001): Enhanced efficiency of a dye-sensitized solar cell made from MgO-coated nanocrystalline SnO_2. Jpn. J. Appl. Phys, **40**, L732-L734.

29. **Bandara, J**, Tennakone, K and Binduhewa, P, (2001): Probing the tunneling of electrons from SnO_2 to ZnO in dye sensitization of composite SnO_2/ZnO by use of generated H_2O_2 via reduction of O_2. New J. Chem., **25**, 1302-1305.

30. **Bandara, J**, Mielczarski, J.A. and Kiwi, J. (2001): I. Adsorption mechanism of chlorophenols on iron oxides, titanium oxide and aluminum oxide as detected by infrared spectroscopy. Sensitized degradation of chlorophenols on iron oxides induced by visible light - Comparison with titanium oxide. Appl. Catal., B: Environ., **34**, 307-320.

31. **Bandara, J**, Mielczarski, J.A. and Kiwi, J, (2001): 2. Sensitized degradation of chlorophenols on iron oxides induced by visible light - Comparison with titanium oxide. Appl. Catal., B: Environ, **34**, 321-333.

32. **Bandara, J**, Tennakone, K and Jayatilaka, P.P.B. (2002): Composite Tin and Zinc Oxide nanocrystalline particles for enhanced charge separation in sensitized degradation of Dyes. Chemosphere, **49**, 439-445.

33. Liu, P., **Bandara, J.,** Lin, Y., Elgin, D. and Sun, Y.P. (2002): Formation of Nanocrystalline Titanium Dioxide in Perfluroinated Ionomer Membrance. Langmuir, **18**, 10398-10401.

34. **Bandara, J**., Divarathne, C.M. and Nanayakkara, S.D. (2004): Fabrication of n-p junction electrodes made of n-type SnO_2 and p-type NiO for control of charge recombination in Dye sensitized Solar Cells. Solar Energy Materials and Solar Cells, **81**, 429-437.

35. Li, I., **Bandara, J.** and Shultz, M.J. (2004): Time Evolution Studies of the H_2O/quartz Interface using Sum Frequency Generation, Atomic Force Microscopy and Molecular Dynamics. Langmuir, **20**, 10474-10481.

36. **Bandara, J**., Hadapangoda, C. and Jayasekera, W.G. (2004): TiO_2/MgO composite Photocatalyst: The role of MgO in photoinduced charge carrier separation. Appl. Catal., B: Environ., **50**, 83-88.

37. Sun, Y.P, Atorngitjawat, P., Lin, Y., Liu, P., Pathak, P., **Bandara J**., Elgin, D. and Zhang, M., (2004), Nanoscale cavities in ionomer membrane for the formation of nanoparticles. J. of Membrane Sci. **245**, 211-217.

38. **Bandara, J**. and Weerasinghe, H.C. (2005): Solid-state dye-sensitized solar cell with p-type NiO as a hole collector. Solar Energy Materials and Solar Cells, **85**, 385-390.

39. **Bandara, J**. and Weerasinghe, H.C. (2005): Enhancement of photovoltage of dye-sensitized solid-state solar cells by introducing high-band-gap oxide layers. Solar Energy Materials and Solar Cells, **88**, 341-350.

40. **Bandara, J**., Pradeep, U.W. and Bandara, R.S.J. (2005): The role of n–p junction electrodes in minimizing the charge recombination and enhancement of photocurrent and photovoltage in dye sensitized solar cells. J. Photochem. and Photobiol. A: Chem., **170**, 273-278.

41. **Bandara, J**., Bowen, P.,,Soare, L., W. F. and Kiwi, J. (2005): Photocatalytic Storing of O_2 as H_2O_2 Mediated by High Surface Area CuO. Evidence for a Reductive-Oxidative Interfacial Mechanism. Langmuir, **21**, 8554 -8559.

42. Raja, P., **Bandara, J**. Giordano, P. and Kiwi, J. (2005): Innovative Supported Composite Photocatalyst for the Oxidation of Phenolic Waters in Reactor Processes. Ind. Eng. Chem. Res*.,* **44**, 8959-8967.

43. **J. Bandara**, C.P.K. Udawatta and C.S.K. Rajapaksha, (2005) Highly stable CuO incorporated TiO_2 catalyst for photocatalytic hydrogen production from H_2O, *Photochem and Photobiol Sciences*, **4**, 857-861.

44. T. Yuranova, R. Mosteo, **J. Bandara**, D. Laub, J. Kiwi, (2006) Self-cleaning cotton textiles surfaces modified by photoactive SiO_2/TiO_2 coating , *J. Mole. Catalysis A: Chemical*, **244**, 160-167.

45. **J. Bandara**, S.S. Kuruppu, U.W. Pradeep, (2006) The promoting effect of MgO layer in sensitized photodegradation of colorants on TiO_2/MgO composite oxide *Coll. Surf.A: Physicochem.Engin. Aspects,*.**276**, 197-202.

46. **J. Bandara** and Hasitha Weerasinghe, (2006) Design of high-efficiency solid-state dye-sensitized solar cells using coupled dye mixtures, S*olar Energy Materials and Solar Cells,* **90**, 864-871.

47. **J. Bandara** and Ranasinghe, R.A.S.S., (2007) The effect of MgO coating on photocatalytic activity of SnO_2 for the degradation of chlorophenol and textile colorants; the correlation between the photocatalytic activity and the negative shift of flatband potential of SnO_2 , *Applied Catalysis A: General* 319, pp. 58-63.

48. **J. Bandara** and Wansapura, P.T., Jayathilaka, S.P.B., (2007) Indium tin oxide coated conducting glass electrode for electrochemical destruction of textile colorants , *Electrochimica Acta* 52 (12), pp. 4161-4166.

49. **J. Band**ara Klehm, U., Kiwi, J., (2007), Raschig rings-Fe_2O_3 composite photocatalyst activate in the degradation of 4-chlorophenol and Orange II under daylight irradiation, *Applied Catalysis B: Environmental* 76 (1-2), pp. 73-81.

50. **Bandara, J** Yasomanee J. P**.,** (2007), p-type oxide semiconductors as hole collectors in dye-sensitized solid-state solar cells, Semi. Sci. Technol., 22, pp 20-24.

51. Yasomanee, **J. Bandara**, (2008), Multi-electron storage of photoenergy using Cu_2O-TiO_2 thin film photocatalyst , *Solar Energy Materials and Solar Cells* 92 (3), pp. 348-352 .

52. **J. Bandara ,** U. W. Pradeep, (2008), Tuning of the flat-band potentials of nanocrystalline TiO_2 and SnO_2 particles with an outer-shell MgO layer, *Thin Solid Films*, in press

53. Shankar, K., **Bandara, J**., Paulose, M., Wietasch, H., Varghese, O.K., Mor, G.K., LaTempa, T.J.,Grimes, C.A., (2008), Highly efficient solar cells using TiO(2) nanotube arrays sensitized with a donor-antenna dye**,** *Nano Letters* 8 (6), pp. 1654-1659.

54. Ruth Helga Lohwasser, **Jayasundera Bandara** and Mukundan Thelakkat, Tailor-made synthesis of poly(3-hexylthiophene) with carboxylic end groups and its application as a polymer sensitizer in solid-state dye-sensitized solar cells *J. Mater. Chem.*, 2009, **19**, 4126

55. **J. Bandara**, K. Shankar, C.A. Griems, M. Thelakkat, Fabrication of high efficiency, structurally inverted and stable P3HT:PCBM heterojunction solar cells with fibrous P3HT, Advanced Functional Materials, submitted.

56. **J. Bandara**, K. Shankar, C.A. Griems, M. Thelakkat, Fabrication of Solid-state Solar Cells using TiO_2 Nanotube Arrays and Donor-Antenna Dye, Nano Letters, submitted

Abstracts and Proceeding of Conferences

1. Bandara, J.M.S. and Ileperuma, O.A. (1990): Photolysis of aqueous manganese (II) bicarbonate. Proceedings of Sri Lanka Association for the Advancement of Science, E2, .59.

2. Pulgarin, C., Pajonk, G.M., Bandara, J. and Kiwi, J. (1995): Abiotic oxidative degradation of Atrazine on zero-valent iron activated by visible light. Meeting ACS Division of Environmental Chemistry, Anaheim CA. Paper No. 232, p 767.

3. Bandara, J., Kiwi, J., Pulgarin, C. and Pajonk, G.M. (1995): Accelerated Abiotic Degradation of Nitrophenols by Cu-oxides: Thermal and Light Induced Reactions. European Federation of Chemical Engineering, 36 C, 71.

4. Bandara, J., Humphery Baker, R. and Kiwi, J. (1995): Efficient Catalytic Mineralization of Stilbene Brighterners. Environmental Catalysis. European Federation of Chemical Engineering, 36 C, 77.

5. Tennakone, K., Bandara, J., Thaminimulla, C.T.K., Kiridena, W.C.B. and Priyadarshan, A. (1995): Hydrogen Production in Photolysis of aqueous managenese(II) bicarbonate. Ceylon Journal of Science: Physical Sciences 2, 45.

6. Bandara, J. and Kiwi, J. (1997): Adsorption and Degradative Photoadsorption of Azo-dyes on Hematite vs Photodegradation on TiO_2. Int. Conf. On TiO_2 Photocatalytic Purification and Treatment of Water and Air, Orlandop, Florida, Sept., 23-26, 109.

7. Bandara, J., Fernandez, J., Lopez, A. and kiwi, J. (1998): Efficient Photoassisted Fenton Degradation in Iron Free Solutions of Azo-dyes at Acid pH and of Textile Effluents at Biocompatible pH. in: Water and Air purification by Advanced Oxidation Technologies, Lausanne, Proceedings European Workshop, 56-.

8. Bandara, J. (1999): Multiphoton semiconductor photocatalysis. Sri Lanka Association for Advancement of Science. R2 237**:** 57^{th} of Annual Sessions, Proceedings of Sri Lanka Association for Advancement of Science*,* E2,.59.

9. Tennakone, K., Bandaranayake, P., Jayaweera, V., Bandara, J., Konno, A., Kumara, G.R.R.A. and Kaneko, (2001): Dye-sensitized photoelectrochemial cell based on Nanocrystalline SnO_2 films: Implications on nature of charge recombinations and transport in dye-sensitized semiconductor nanostructures. Proceeding of 200th Meeting of the Electrochemical Society, San Francisco.

10. J. Bandara, H. C. Weerasinghe, High-efficiency solid-state dye-sensitized solar cells using coupled dye mixtures, Proceedings of the 60th Annual Session, of Sri Lankan Association for the Advancement of Science. 518E1,

11. U. W. Pradeep, R. G. S. J. Bandara, J. Bandara, H. C. Weerasinghe, the Role of n-p Junction electrodes in minimizing charge recombinations in dye sensitized solar cells, Proceedings of the 60th Annual Session, of Sri Lankan Association for the Advancement of Science. 519E1,

12. P. T. Wansapura, J. Bandara, Electrochemical destruction of textile colorants using Indium Tin Oxide (ITO) coated conducting glass electrode, Proceedings of the 62nd Annual Session, of Sri Lankan Association for the Advancement of Science. 624E2,
13. J. P. Yasomanee, J. Bandara, Use of p-type CuAlO2 and NiO hole collectors in dye-sensitized solid-state solar cells, Proceedings of the 62nd Annual Session, of Sri Lankan Association for the Advancement of Science. 625E2

14. Yasomanee, J.P. and Bandara, J. (2006): p-type NiO and $CuAlO_2$ hole collectors for dye-sensitized solid-state solar cells. Proceedings of Asian conference on solar energy materiasland soalr cells, June 14-16, 2006, 34.

Text Books and Monographs and Chapters in Books

1. Ileperuma, O.A., Kiridena, W.C.B., Thaminimulla, C.T.K. and Bandara, J.M.S. (1991): Photoreduction of N_2 to CH_3 on the composite catalyst of MoO_3/TiO_2. Proc. Second. Int. Sym. on Solid State Physics, Ed. M. A. K. L. Dissanayake, Nova Publishers, 1991.

2. Sun, YP., Rollins, H.W., Bandara, J., Meziani, M.J. and Bunker, C.E. (2002): Preparation and processing of nanoscale materials by supercritical fluid technology in Supercritical Fluid Technology in Materials Science and Engineering Synthesis, Properties and Applications, Ed Sun, Y.P., Marcell Dekker, New York.

Patents

Tennakone, K., Bandara, J., jayaweera, P.V.V.A. and Bandaranayake, P. (2001) Dye-sensitized photoelectrochemical cell made from a film of magnesium oxide coated tin (IV) oxide, , Sri Lanka Patent.

Research Grants

(1) National Science Foundation Research Grant.
(2) National Research Council Research Grant. (awaiting funds)

(1) Reviewer for the following journals for the period of 1999-2008 (more than 70 manuscripts)

Applied Surface Science**,** Chemosphere**,** Colloids and Surfaces A: Physicochemical and Engineering Aspects, Catalysis Letters**,** Chemistry of Materials**,** Dyes and Pigments, Environmental Engineering Science**,** Environmental Science & Technology, Electrochimica Acta**,** International Journal of Chemical Kinetics**,** Journal of Physics D, Journal of Hazardous Materials, Journal of Alloys and Compounds, The Journal of American Chemical Society, Physical Chemistry B, Langmuir**,** Solar Energy Materials and Solar Cells, SYNTHETIC METALS, Spectrochimica Acta Part A, Molecular and Bimolecular Spectroscopy, The Journal of Physical Chemistry, The Journal of Molecular Catalysis,

(4) Evaluator for the Research proposals of American Chemical Society.

Academic distinctions

1. Research Fellowship, Institute of Fundamental Studies, Sri Lanka, 1989 – 1991.
2. UNESCO/MOMBUSHO Research Fellowship, Japan, 1991-1992.
3. Swiss Government Fellowship, Switzerland, 1994 -1998.
4. Postdoctoral Research Fellowship, USA, 2000 – 2001.
5. Presidential Awards, 2000 and 2001 (2002, 2004, 2005, 2006 pending)
6. Swiss Federal Institute of Technology, Switzerland, Invited Professor, 2005

7. Young Scientist Award, NASTEC, Sri Lanka, 2006
8. Goethe Institute Language Fellowship, Germany, 2007.
9. Humboldt Research Fellowship, Germany, 2007 - 2008.