

Name: Dr. Srinivasan ANANDAN

Qualification: M. Sc., M. Phil., Ph. D.

Designation: Senior Scientist

Contact information:

Center for Nanomaterials,

Ph.: +91-40-24452478

Fax: +91-40-24442699

Email: anandan@arci.res.in



Experience:

June 2014 to till date: Working as **Scientist D** at International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, INDIA

June 2012 to till date: Worked as **Senior Scientist** at International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), Hyderabad, INDIA

Apr. 2011 to May 2012: Worked as **JSPS (Japan Society for Promotion of Science) Fellow** at Tokyo Institute of Technology, Tokyo, Japan.

Apr. 2010 to Mar. 2011: Worked as **JSPS (Japan Society for Promotion of Science) Fellow** at National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan.

Apr. 2009 to Mar.2010: Worked as **Post doctoral Research Scientist** at National Institute of Advanced Industrial Science & Technology (AIST), Tsukuba, Japan.

Apr. 2007 to Mar. 2009: Worked as **Post doctoral Researcher** at Department of Applied Chemistry, Kanagawa Institute of Technology (KAIT), Atsugi, Japan.

Apr. 2006 to Mar. 2007: Worked as **Post doctoral Researcher** at National Institute of Materials Science (NIMS), Tsukuba, Japan.

a. Research Areas of Interest:

Photocatalysis

Scope: Synthesis of novel visible-light and UV-light active photocatalysts and their application for the photocatalytic degradation of organic pollutants, hydrogen generation, and anti-bacterial activity.

Materials:

- Fabrication novel based visible-light active photocatalysts by band gap engineering (conduction band control) and co-catalysts modification.
- Synthesis of highly crystalline mesoporous C&N-doped TiO₂ using uni and three dimensional mesoporous materials
- Preparation of UV-light active photocatalysts using supported, metal and non-metal doping over semiconductor photocatalysts

Mechanism:

- Visualization of charge transfer between heterogeneous semiconductors by photo-oxidation and photo-reduction reaction
- Understanding the surface properties (hydrophilicity) of rutile TiO₂ single crystal upon water deposition and UV irradiation by high energy synchrotron x-ray radiation.

Application:

- Evaluation of novel visible-light and UV-light active photocatalysts for
 - Organic pollutants decomposition in aqueous and gaseous phase
 - Water splitting
 - Anti-bacterial activity

Mesoporous materials

Scope: Synthesis of novel mesoporous carbon, carbon nitrides and its application to bio-molecules adsorption and fuel cell applications

- Synthesis, and characterization of mesoporous silica such as MCM-41, SBA-1, SBA-15 with various pore diameters
- Synthesis of mesoporous carbon and carbon nitrides with excellent textural parameters using uni and three dimensional mesoporous materials such as KIT-6, SBA-15, MCM-48 and KIT-5
- Application of mesoporous carbon and carbon nitrides towards bio-molecules adsorption (Cytochrome c, Lysozyme and Trypsin) and fuel cells

Li-ion Battery:

Scope: Synthesis, characterization of various cathode and anode materials and their electrochemical applications.

- Preparation of cathode (LiFePO₄, LiMnPO₄) and anode (TiO₂, SnO₂, Fe₃O₄, CuO) materials by large scale process.
- Development of uniform carbon coating on electrode materials by unique process to increase the electronic conductivity.
- Process optimization for carbon coating by varying carbon precursors (mono and disaccharides), varying carbon thickness, and carbonization temperature
- Evaluation of efficiency of electrode materials by charge/discharge and stability test using half and full cell assembly of electrode materials.

b. List of Journal Publications:

1. Raju Kumar, D. Navadeepthy, K. Hembram, T. N. Rao, **S. Anandan**,* “Visible-light induced photocatalytic disinfection of *E.coli* pathogens with Fe³⁺-grafted ZnO nanoparticles” *Energy and Environment Focus (in press)*.
2. Y. Ikuma, S. Ogoe, M. Mitsugi, K. Niwa, **S. Anandan**, E. Yamauchi, H. Tajiri, O. Sakata, “Surface X-ray diffraction study and photocatalytic activity of HF-treated single crystal rutile TiO₂ (001) surface” *Ionics (in press)*.
3. M.B. Sahana, S. Vasu, N. Sasikala, **S. Anandan**, H. Sepehri-Amin, C. Sudakar, R. Gopalan, “Raman spectral signature of Mn-rich nanosclae phase segregation in carbon free LiFe_{1-x}MnxPO₄ prepared by hydrothermal technique” *RSC Adv.* Vol. 4, pp. 64429-64437, 2014
4. Raju Kumar, **S. Anandan**,* K. Hembram, T. N. Rao, “Efficient ZnO-based visible-light-driven photocatalyst for anti-bacterial applications” *ACS Appl. Mater. Interf.* Vol. 6, pp.13138-13148, 2014.
5. Y. Ikuma, S. Ogoe, S. Nakamura, K. Niwa, **S. Anandan**, H. Tajiri, O. Sakata, “Effect of multiple parallel grooves on the photocatalytic activity of rutile TiO₂ surfaces” *Key Engineering Materials*, Vol.617, pp.109-112, 2014
6. **S. Anandan**,* T. N. Rao, R. Gopalan, and Y. Ikuma, “ Fabrication of visible-light driven N-doped ordered mesoporous TiO₂ and their photocatalytic applications” *J. Nanosci. Nanotechnol.* Vol. 14, pp.3181-3186, 2014.
7. S. Bhuvaneshwari, P. M. Pratheeksha, **S. Anandan**,* D. Rengappa, R. Gopalan, and T. N. Rao “Efficient reduced graphene oxide grafted porous Fe₃O₄ composites as a high performance anode material for Li-ion batteries” *Phys. Chem. Chem. Phys*, Vol. 16, pp.5284-5294, 2014
8. **S. Anandan**, T. N. Rao, M. Sathish, D. Rengappa, I. Honma, and M. Miyauchi, “ Supper--hydrophilic Graphene loaded TiO₂ thin-film for self-cleaning applications” *ACS Appl. Mater. Interf.* Vol. 3, pp.207-212, 2013.
9. B. Palanisamy, C. M. Babu, B. Sundaravel, **S. Anandan**, M. Palanichamy, and V. Murugesan, “Sol-gel synthesis of mesoporous mixed Fe₂O₃/TiO₂ photocatalyst:

- Application to degradation of 4-chlorophenol" *J. Hazard. Mater.* Vol. 252-253, pp.233-242, 2013.
10. B. Palanisamy, C. M. Babu, B. Sundaravel, **S. Anandan**, and V. Murugesan, "Efficient visible-light active mesoporous Ce-incorporated TiO₂ photocatalysts for the degradation of 4-chlorophenol" *J. Nanosci. Nanotechnol.* Vol. 13, pp.2573-2581, 2013.
 11. **S. Anandan**, and M. Miyauchi, "Chemically stable WO₃ based thin-film for visible-light induced oxidation and super-hydrophilicity" *J. Phys. Chem. C*, Vol. 116, pp.15421-15426, 2012.
 12. **S. Anandan**, and M. Miyauchi, "Improved photocatalytic efficiency for WO₃ system by an efficient visible-light-induced hole transfer" *Chem. Commun.*, Vol. 48, pp.4323-4325, 2012.
 13. S. N. Talapaneni, **S. Anandan**, G. P. Mane, C. Anand, S. Varghese, A. Mano, T. Mori, and A. Vinu, "Facile synthesis and basic catalytic application of 3D mesoporous carbon nitride with a controllable bimodal distribution" *J. Mater. Chem.*, Vol. 22, pp.9831-9840, 2012.
 14. **S. Anandan**, Y. Ikuma, and V. Murugesan "Highly Active Rare-earth Metal-La-doped Photocatalysts: Fabrication, Characterization and Their Photocatalytic Activity" *Int. J. Photoenergy* Vol. 2012, pp.1-10, 2012.
 15. K. Niwa, R. Kuramoto, **S. Anandan**, and Y. Ikuma "Zeta potential and hydrogen production of mesoporous titanium dioxide" *Procedia Engineering*, Vol.36, pp.62-67, 2012.
 16. **S. Anandan**, and M. Miyauchi, "Ce-doped ZnO (Ce_xZn_{1-x}O) becomes an efficient visible-light-sensitive photocatalyst by co-catalyst (Cu²⁺) grafting" *Phys. Chem. Chem. Phys.* Vol.13, No. 33, pp.14937-14945, 2011.
 17. **S. Anandan**, N. Ohashi, and M. Miyauchi, "ZnO-based visible-light photocatalysts: Band-gap engineering and Multi-electron reduction by co-catalyst" *Appl. Catal. B. Environ.* Vol.100, pp. 502-509, 2010.
 18. **S. Anandan**, and M. Miyauchi, "Photocatalytic activity of Cu²⁺-grafted metal doped ZnO photocatalysts under visible-light irradiation", *Electrochemistry*, Vol.79, pp.842-844, 2011.
 19. M. Miyauchi, Z. Liu, Z. Zhao, **S. Anandan**, K. Hara, "Single crystalline zinc stannate nanoparticles for efficient photo-electrochemical devices" *Chem. Commun.*, Vol. 46, pp. 1529, 2010.
 20. **S. Anandan**, A. Vinu, K. L. P. Sheeja Lovely, N. Gokulakrishnan, P. Srinivasu, T. Mori, V. Murugesan, V. Sivamurugan, K. Ariga "Photocatalytic activity of La-doped ZnO for

the degradation of monocrotophos in aqueous suspension" *J. Mol. Cat. A: Chem.*, Vol. 266, No. 1-2, pp.149-157, 2007.

21. M. Miyauchi, Z. Liu, Z. Zhao, **S. Anandan**, H. Tokudome, "Visible-light-driven superhydrophilicity by interfacial charge transfer between metal ions and metal oxide nanostructures" *Langmuir*, Vol. 26, pp. 796-801, 2010.
22. A. Vinu, K.Z. Hossain, P. Srinivasu, M. Miyahara, **S. Anandan**, N. Gokulakrishnan, T. Mori T, K. Ariga and V.V. Balasubramanian "Carboxy-Mesoporous Carbon and Its Excellent Adsorption Capability for Proteins" *J. Mater. Chem.*, Vol.17, No. 18, pp.1819-1825, 2007.
23. **S. Anandan**, A. Vinu, N. Venkatachalam, B. Arabindoo and V. Murugesan, "Photocatalytic activity of ZnO impregnated H β and mechanical mix of ZnO and H β in the degradation of monocrotophos in aqueous solution" *J. Mol. Cat. A: Chem.*, Vol. 256, No. 1-2, pp. 312-320, 2006.
24. **S. Anandan**, A. Vinu, N. Gokulakrishnan, P. Srinivasu, T. Mori, V. Murugesan, K. Ariga "Photocatalytic degradation of 2,4,6-trichlorophenol using lanthanum doped ZnO in aqueous suspension" *Catal. Commun.* Vol. 8, No. 9, pp. 1377-1382, 2007.
25. **S. Anandan**, V. Murugesan and Y. Ikuma "Anionic (IO $_3^-$) Non-Metal Doped TiO $_2$ Nanoparticles for the Photocatalytic Degradation of Hazardous Pollutant in Aqueous Suspension" *Catal. Commun.* Vol.10, No. 6, pp.1014-1019, 2009.
26. **S. Anandan**, Y. Ikuma, K. Kakinuma and K. Niwa "Synthesis and characterization of highly crystalline novel mesoporous C&N doped TiO $_2$ Nanophotocatalyst" *Nano*, Vol.3, No. 5, pp. 367-372, 2008.
27. **S. Anandan** and Y. Ikuma, "Synthesis and characterization of Anionic doped TiO $_2$ nanophotocatalyst with enhanced photocatalytic activity" *Trans. Mater. Res. Soc. Jpn.*, Vol. 34, No.1, pp. 161-164, 2009.
28. **S. Anandan**, Y. Ikuma, T. Kudoh, Y. Ogita and V. Murugesan "Nanosize lanthanum doped semiconductors: Synthesis, characterization and their photocatalytic activity" *Adv. Mater. Res.* Vol.31, pp. 212-214, 2008.
29. **S. Anandan**, A. Vinu, T. Mori, K. Ariga "Synthesis of nitrogen-doped mesoporous carbon using templating technique" *Trans. Mater. Res. Soc. Jpn.*, Vol. 32, No. 4, pp. 1003-1005, 2007.
30. K. Niwa, K. Tamura, **S. Anandan**, and Y. Ikuma "Hydrogen production using mesoporous titanium dioxide" *Adv. App. Cer.*, Vol.111, No. 1&2, pp.34-38, 2012.
31. Y.Ikuma, H. Tajiri, K. Ishiguro, **S. Anandan**, K. Niwa, O. Sakata, and K. Nakata, "Preparation of ordered 1x1 surface of rutile TiO $_2$ (001) for surface x-ray diffraction study," *Trans. Mater. Res. Soc. of Japan*, Vol. 36, No. 3, 535-539 (2011).

32. Y. Ikuma, **S. Anandan** and K. Niwa "Lattice parameter, defect concentration and oxygen diffusion in ceria solid solutions" *Trans. Mater. Res. Soc. Jpn.*, Vol. 35, No.3, pp. 485-489, 2010.
33. A.Vinu, **S. Anandan**, C. Anand, P. Srinivasu, K. Ariga and T. Mori, "Fabrication of partially graphitic three dimensional nitrogen doped mesoporous carbon using polyaniline nanocomposite through nanotemplating method" *Micropor. Mesopor. Mater.* Vol. 109, No. 1-3, pp. 398-404, 2008.
34. J. Rajesh Banu, **S. Anandan**, S. Kaliappan and Ick Tae-Yeom "Treatment of diary wastewater using anaerobic and solar photocatalytic methods" *Solar Energy* Vol.82, pp. No. 9, 812-819, 2008.
35. A. Vinu, T. Krithiga, N. Gokulakrishnan, P. Srinivasu, **S. Anandan**, K. Ariga, V. Murugesan, V.V. Balasubramanian and T. Mori "Halogen free acylation of toluene over FeSBA1 molecular sieves", *Micropor. Mesopor. Mater.* Vol.100, No. 1-3, pp. 87-94, 2007.
36. M. V. Shankar, **S. Anandan**, N. Venkatachalam, B. Arabindoo and V. Murugesan, "Fine route for an efficient removal of 2,4-dichlorophenoxyacetic acid (2,4-D) by zeolite- supported TiO₂" *Chemosphere* Vol. 63, No.6, pp. 1014-1021, 2006.
37. M.V. Shankar, **S. Anandan**, N. Venkatachalam, B. Arabindoo and V. Murugesan, "Novel thin-film reactor for photocatalytic degradation of water-borne endocrine disrupting chemicals" *J. Chem. Technol. Biotechnol.* Vol. 79, No. 11, pp. 1279 -1285, 2004.
38. N. Venkatachalam, A. Vinu, **S. Anandan**, B. Arabindoo and V. Murugesan, "Visible light active photocatalytic degradation of bisphenol-A using nitrogen doped nanocrystalline TiO₂ prepared by low temperature sol-gel process", *J. Nanosci. Nanotechnol.* Vol. 6, No. 8, pp. 2499-2507, 2006.
39. A. Vinu, **S. Anandan**, N. Gokulakrishnan, P. Srinivasu, K. Ariga, V. Murugesan, V.V. Balasubramanian and T. Mori, "Mesoporous nitrides through nano-hard templating techniques", *Solid state Phenomena* Vol. 119, pp. 291-294, 2007.
40. P. Srinivasu, A. Vinu, N. Gokulakrishnan, **S. Anandan**, T. Mori, K. Ariga "Novel microporous carbon material with flower like structure templated by MCM-22" *J. Nanosci. Nanotechnol.* Vol.7, No. 8, pp.2913-2916, 2007.
41. D.P. Sawant, A. Vinu, S.P. Mirajkar, F. Lefebvre, K. Ariga, **S. Anandan**, T. Mori, C. Nishimura and S.B. Halligudi, "Silicotungstic acid/zirconia immobilized SBA-15 for esterifications", *J. Mol. Cat. A: Chem.*, Vol.271, No. 1-2, pp. 46-56, 2007.
42. A. Vinu, T. Mori, S. Hishita, **S. Anandan**, V.V. Balasubramanian and K. Ariga "One and Three Dimensional Mesoporous Carbon Nitride Molecular Sieves with Tunable Pore Diameters", *Stud. Surf. Sci. Catal.* Vol.165, pp. 905-908, 2007.

43. **S. Anandan**, R. Gopalan, and T. N. Rao, "Efficient CuO anode materials for Li-ion battery applications" *J. Nanosci. Nanotechnol.* (Under preparation).
44. N. Deepthy, **S. Anandan**, R. Gopalan, and T. N. Rao, "A Novel Visible-light-driven Cu²⁺-modified mesoporous TiO₂ by surfactant assisted hydrothermal method" *J. Phys. Chem. C* (Under preparation).

c. List of Patents (Applied):

1. A. Vinu, **S. Anandan**, P. Srinivasu, N. Gokulakrishnan, T. Mori, K. Ariga, Synthesis of Nitrogen-Doped Mesoporous Carbon using Templating Technique, Ref.: **JP5294234**, dt. **21/06/2013**.
2. A. Vinu, **S. Anandan**, K. Ariga, T. Mori, Mesoporous Carbon Nitride Materials and Method for Producing the Same, Ref.: **PCT/JP2008/056802**, **April 16, 2008**.
3. Y. Ikuma, **S. Anandan**, K. Niwa, N-doped mesoporous titanium dioxide, Ref.: **JP 2008-118840**, **April 30, 2008**.
4. A. Vinu, **S. Anandan**, T. Mori, K. Ariga, Three Dimensional Cubic Mesoporous Carbon Nitride with Bimodal Pores and a method for Preparing the Same, Ref.: **JP 2007-99061**. **April 5, 2007**.
5. **S. Anandan**, G. Sivakumar, Raju Kumar, T. N. Rao, S. V. Joshi, "Method of producing high performance visible-light-active photocatalytic materials for self cleaning application" (under preparation)

d. Conference proceedings:

1. **S. Anandan**, J. Rajesh Banu, N. Venkatachalam, S. Kaliappan, Banumathi Arabindoo and V. Murugesan, 'Combinative biological and photocatalytic degradation of diary wastewater' International Conference on Advances in Industrial Wastewater Treatment, Centre for Environmental Studies, Anna University, India, February 9-11, 2005
2. **S. Anandan**, N. Venkatachalam, M.V. Shankar, Banumathi Arabindoo and V. Murugesan, 'Photocatalytic degradation of waterborne endocrine disrupting chemicals with novel thin-film reactor' National seminar on Role of Chemistry in the Emerging Areas of Applied Sciences, Sri Venkateswara University, Tirupati, India, March 15-17, 2004.
3. N. Venkatachalam, **S. Anandan**, M.V. Shankar, Banumathi Arabindoo and V. Murugesan, 'Zeolite based photocatalytic mineralisation of environmental

estrogenic pollutant in the aqueous medium' National Seminar on Role of Chemistry in the Emerging Areas of Applied Sciences, Tirupati March 15-17, 2004.

e. Contribution to Books

1. **S. Anandan**, Y. Ikuma and K. Niwa, An overview of Semi-conductor Photocatalysis: Modification of TiO₂ nanomaterials in Solid-State Chemistry and Photocatalysis of Titanium dioxide, Solid State Phenomena, Vol. 162 (2010) pp. 239-260, Edited by M.K. Nowotny and J. Nowotny, Publisher: Trans Tech Publications, Switzerland.
2. **S. Anandan**, H. Neha, B.V. Sarada and Tata N. Rao, "Nanomanufacturing For Aerospace Applications" in SOURCE BOOKS From the Book Series of Indian Institute of Metals (IIM) on **AEROSPACE MATERIALS AND TECHNOLOGIES** Volume 2- Material Technologies, Edited by N. Eswara Prasad and RJH Wanhill. (under revision)

f. Affiliation to Professional societies:

Member of American Chemical Society, and Material Research Society of Japan.

g. Awards & Honors:

1. Awarded a prestigious "**JSPS FELLOWSHIP**" by Japan Society for Promotion of Science, Japan
2. Awarded "**YOUNG SCIENTIST AWARD**" by the Material Research Society of Japan at IUMRS-ICA 2008, Nagoya, Japan.
3. Being a one of the organizing committee members in the IUMRS-ICA2008 International conference held in Nagoya, Japan on December 2008.
4. Member of Material Research Society of Japan, and American Chemical Society.
5. Chaired a session in the **IUMRS-ICA2008** International conference held in Nagoya, Japan in December 2008.
6. Provisionally selected for **Junior Project Fellowship** in UGC Sponsored Research Project in Anna University, India, 2003-2006.

h. Presentation delivered in National/International Conferences:

1. **S. Anandan**, P.M. Pratheeksha, B. Venugopal, T. N. Rao, Development of core-shell structured carbon coated electrode materials for improved Li-ion battery performance, National conference on Materials for Energy Conversion and Storage (NCMECS 2015), Chennai, 20-21, March 2015 (Invited Talk)
2. **S. Anandan** and M. Miyauchi, "Development of Efficient ZnO-based Visible-light Photocatalysts: Metal-ion Doping and Co-catalyst Modification", The 16th International Conference on TiO₂ Photocatalysis: Fundamentals and Applications (TiO₂-16), Town & Country Resort, San Diego, California, USA, 7-10th November, 2011.
3. Y. Ikuma, Y. Miyauchi, **S. Anandan** and K. Niwa, "Decomposition of methylene blue by photocatalytic activity of crystalline mesoporous TiO₂," 18th International Conference on Solid State Ionics, Warsaw, Poland, July 7, 2011.
4. **S. Anandan** and M. Miyauchi, "ZnO- based Visible-light Photocatalysts: Band-gap Engineering and Grafting of Co-catalyst" 17th Photocatalysis Symposium by Photochemical society of Japan, KASP, December, 2010.
5. **S. Anandan** and M. Miyauchi, "Fabrication of ZnO-based Visible-light Photocatalysts: by Band-gap Engineering and Multi-electron reduction" 3rd International Congress on Ceramics, Osaka, Japan, November 2010.
6. R. Kuramoto, Y. Miyauchi, **S. Anandan**, K. Niwa and Y. Ikuma, "Synthesis and photocatalytic activity of mesoporous TiO₂ powder," The 20th Academic Symposium of Materials Research Society of Japan (December 21, 2010).
7. R. Kuramoto, Y. Miyauchi, **S. Anandan**, K. Niwa and Y. Ikuma "Hydrogen production by mesoporous titanium dioxide," Ceramic Fiesta in Kanagawa, December 11, 2010.
8. Y. Ikuma, **S. Anandan**, H. Fukushima, and K. Niwa, "Synthesis and photocatalytic activity of crystalline mesoporous C and N-co-doped TiO₂ nanophotocatalyst," 2010 MRS Fall Meeting, Boston, MA (November 30, 2010).
9. **S. Anandan** and M. Miyauchi, "Fabrication of ZnO-based visible light photocatalyst by band-gap engineering and multi-electron reduction" 3rd International Conference on Ceramics (ICC-3), International Congress Center, Osaka, Japan, November, 14-18, 2010.
10. R. Kuramoto, Y. Miyauchi, K. Niwa, Y. Ikuma, **S. Anandan**, "Fabrication of mesoporous TiO₂ and its characterization by methylene blue," The 26th Ceramic Research Conference of Kanto Branch, The Ceramic Society of Japan, Hitachi, Japan, July 23, 2010
11. Y. Yanagida, **S. Anandan**, K. Niwa, Y. Ikuma, "Formation of hydrogen by mesoporous TiO₂ with sun light irradiation," Ceramic Fiesta in Kanagawa, December 12, 2009.

12. Y. Miyauchi, **S. Anandan**, K. Niwa, Y. Ikuma, "Synthesis of mesoporous TiO₂ and decomposition of methylene blue by the oxide," Ceramic Fiesta in Kanagawa, December 12, 2009.
13. K. Ishiguro, H. Tajiri, **S. Anandan**, K. Niwa, Y. Ikuma, "Study of surface structure of rutile TiO₂," Ceramic Fiesta in Kanagawa, December 12, 2009.
14. **S. Anandan**, K. Niwa and Y. Ikuma, "Enhanced production of hydrogen using highly active Pt-deposited mesoporous N-doped TiO₂ photocatalyst," The 19th Academic Symposium of Materials Research Society of Japan, Yokohama, Japan, December 9, 2009.
15. Y. Miyauchi, H. Fukushima, **S. Anandan**, K. Niwa, Y. Ikuma, "Synthesis and characterization of mesoporous TiO₂," The 19th Academic Symposium of Materials Research Society of Japan, Yokohama, Japan, December 9, 2009.
16. Y. Yanagida, K. Tamura, **S. Anandan**, K. Niwa, Y. Ikuma, "Formation of hydrogen by mesoporous TiO₂," The 25th Ceramic Research Conference of Kanto Branch, The Ceramic Society of Japan, Minakami, Japan, July 31, 2009.
17. K. Ishiguro, H. Tajiri, **S. Anandan**, K. Niwa, Y. Ikuma, "Measurement of surface structure of TiO₂ by surface x-ray diffraction," The 25th Ceramic Research Conference of Kanto Branch, The Ceramic Society of Japan, Minakami, Japan, July 31, 2009.
18. Y. Miyauchi, H. Fukushima, **S. Anandan**, K. Niwa, Y. Ikuma, "Fabrication and characterization of mesoporous TiO₂," The 25th Ceramic Research Conference of Kanto Branch, The Ceramic Society of Japan, Minakami, Japan, July 31, 2009.
19. Koichi Niwa, Kouichi Tamura, **Srinivasan Anandan** and Yasuro Ikuma, "Hydrogen Production by Mesoporous Titanium Oxide," Energy: Environmentally Friendly Solutions (Research Workshop), Campbelltown, Sydney, Australia, March 27, 2009.
20. **S. Anandan** and Y. Ikuma "Fabrication of crystalline mesoporous N-doped TiO₂ and its photocatalytic applications under visible light" Materials for Advanced Metallization MAM 2009, Grenoble, France, March, 9-11, 2009
21. K. Tamura, **S. Anandan**, K. Niwa, and Y. Ikuma "Photocatalytic activity of N-doped mesoporous titanium dioxide" Ceramic Fiesta in Kanagawa, December 20, 2008
22. H. Fukushima, **S. Anandan**, K. Niwa and Y. Ikuma "Synthesis and characterization of nitrogen doped mesoporous titanium dioxide" Ceramic Fiesta in Kanagawa, December 20, 2008
23. **S. Anandan**, Y. Ikuma, K. Niwa and T. Takamura Enya "Photocatalytic and anti-bacterial activity of mesoporous nitrogen doped TiO₂ nanocatalyst under visible

- light irradiation" The IUMRS International Conference in Asia 2008, The Material Research Society of Japan, Japan, December, 9-13, 2008
24. Y. Ikuma, **S. Anandan**, K. Niwa, H. Tajiri, O. Sakata and K. Nakata " Effect of water and UV light on surface structure of Single crystal TiO₂" The IUMRS International Conference in Asia 2008, The Material Research Society of Japan, Japan, December, 9-13, 2008
 25. **S. Anandan**, Y. Ikuma and T. Takamura Enya " Anti-bacterial activity of mesoporous nitrogen doped TiO₂ under eco-friendly sunlight" The 24th Ceramics Research Conference of Kanto Branch, Ceramic Society of Japan, Japan, July, 24-25, 2008
 26. H. Fukushima, **S. Anandan**, Y. Ikuma and K. Niwa " Synthesis and characterization of nitrogen doped mesoporous TiO₂" The 24th Ceramics Research Conference of Kanto Branch, Ceramic Society of Japan, Japan, July, 24-25, 2008
 27. K. Tamura, **S. Anandan**, Y. Ikuma and K. Niwa " Photocatalytic activities of nitrogen (N) doped mesoporous TiO₂ under visible light" The 24th Ceramics Research Conference of Kanto Branch, Ceramic Society of Japan, Japan, July, 24-25, 2008
 28. **S. Anandan**, Y. Ikuma and Takeji-Takamura Enya " Highly crystalline cubic mesoporous N-doped TiO₂ for photocatalytic applications" 9th International Hydrocolloids Conference 2008, Singapore, June, 15-19, 2008
 29. **S. Anandan**, Y. Ikuma, K. Kakinuma and K. Niwa " Synthesis and characterization of highly crystalline novel mesoporous C&N-co-doped TiO₂ nanophotocatalyst" International Symposium on Nanotechnology in Environmental Protection and Pollution, Fort Lauderdale, FL, USA, December, 11-13, 2007
 30. **S. Anandan** and Y. Ikuma " Synthesis and characterization of anionic doped TiO₂ nanophotocatalyst with enhanced photocatalytic activity" The 18th symposium of the Materials Research Society of Japan, Nihon University, Japan, December, 7-9, 2007
 31. **S. Anandan**, Y. Ikuma, and V. Murugesan " Enhanced activity of IO₃⁻ modified ZnO for the degradation of 2,4,6-trichlorophenol in aqueous suspension" 10th IUMRS International Conference on Advanced Materials, Bangalore, India, October, 8-13, 2007
 32. **S. Anandan**, Y. Ikuma, T. Kudoh, Y. Ogita and V. Murugesan " Nano size lanthanum doped semiconductors: Synthesis, characterization and their photocatalytic activity" 4th International Conference on Materials for Advanced Technologies 2007, Suntec Singapore International Convention and Exhibition Center, Singapore, July, 1-6, 2007

33. **S. Anandan**, A. Vinu, T. Mori and K. Ariga “ Synthesis of graphitic nitrogen-doped three dimensional cage type mesoporous carbon” The 17th symposium of the Materials Research Society of Japan, Nihon University, Japan, December, 8-10, 2006
34. **S. Anandan**, A. Vinu, T. Mori and K. Ariga “ Synthesis of Novel Three Dimensional Cage Type Mesoporous Carbon Nitride with Very High Surface Area and Pore Volume” Eighth International Conference on Nanostructured Materials, Indian Institute of Science, Bangalore, India, August 20-25, 2006
35. **S. Anandan**, N. Venkatachalam, M. Mahalakshmi, Banumathi Arabindoo and V. Murugesan, Photocatalytic mineralisation of phenol in water and industrial effluent with aqueous TiO₂ suspension’ International Conference on Environment, Ecology & Pollution, Arunai Engineering College, Tiruvannamalai, India, January 6-7, 2005
36. N. Venkatachalam, **S. Anandan**, Banumathi Arabindoo and V. Murugesan ‘Photocatalytic mineralisation of non-biodegradable herbicide in the aqueous medium. International Conference on Energy, Ecology and Pollution, Arunai Engineering College, Tiruvannamalai, India. January 4-5, 2005.
37. M. Mahalakshmi, **S. Anandan**, N. Venkatachalam, Banumathi Arabindoo and V. Murugesan, “Photocatalytic degradation of carbofuran on degussa P-25 TiO₂” International Conference on Environment, Ecology & Pollution, Arunai Engineering College, Tiruvannamalai, India, January 6-7, 2005.
38. **S. Anandan**, N. Venkatachalam, M.V. Shankar, Banumathi Arabindoo and V. Murugesan, Comparison of Photocatalytic activity of ZnO impregnated H β and ZnO + H β zeolite combinate for the photocatalytic degradation of monocrotophos in aqueous solution’ 17th National Symposium on Catalysis, Central Salt & Marine Chemicals Research Institute, Bhavnagar, India, January 18-20, 2005
39. N. Venkatachalam, **S. Anandan**, M.V. Shankar, Banumathi Arabindoo and V. Murugesan ‘Low cost adsorbents for enhanced photocatalytic mineralisation of non-biodegradable pesticides in the aqueous medium’. 17th National Symposium on Catalysis, CSMCRI, Bhavnagar, India, January 18-20,2005.
40. M. Mahalakshmi, **S. Anandan**, N. Venkatachalam, Banumathi Arabindoo and V. Murugesan, “Photo catalytic degradation of monocrotophos over ZnO using slurry and thin-film fixed bed reactor” 17th national Symposium on Catalysis, CSMCRI, Bhavnagar, India, January 18-20, 2005.
41. **S. Anandan**, N. Venkatachalam, M. Mahalakshmi, Banumathi Arabindoo and V. Murugesan, ‘Solar photocatalytic degradation of diary wastewater’ National Conference on Pollution Abatement Through Technology Development, Department of Chemistry, Anna University, Chennai, India, March 18-19, 2005.
42. N. Venkatachalam, **S. Anandan**, Banumathi Arabindoo and V. Murugesan, ‘Visible light active photocatalytic degradation of bisphenol-A in an aqueous medium using

nitrogen doped TiO₂' National Conference on Pollution Abatement Through Technology Development, Department of Chemistry, Anna University, Chennai, India, March 18-19, 2005.

43. M. Mahalakshmi, **S. Anandan**, N. Venkatachalam, Banumathi Arabindoo and V. Murugesan, "Photocatalytic degradation of carbofuran on semiconductor oxides" National Conference on Pollution Abatement Through Technology Development, Anna University, Chennai, India, March, 18-19,2005.
44. **S. Anandan**, N. Venkatachalam, M.V. Shankar, Banumathi Arabindoo and V. Murugesan 'Determination of pesticides in aqueous medium: an improved photocatalytic activity of titania hybridised with different low cost adsorbents' National workshop on Advances in catalysis, Loyola College, Chennai, India, January, 6-7, 2004.
45. N. Venkatachalam, **S. Anandan**, M.V. Shankar, Banumathi Arabindoo and V. Murugesan 'Titania-Zeolite composite for enhanced photocatalytic degradation of 2,4-D in aqueous medium' National workshop on Advances in catalysis, Loyola College, Chennai, India, January, 6-7, 2004.