

Biodata of Dr. S. ABRAHAM JOHN



1. Present Position

Associate Professor

2. Address for communication

Office

Department of Chemistry
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Residence

3-2-16/2B, Muthamil Nagar
Chinnalapatti
Dindigul-624 301.

3. Educational Qualifications

M.Sc. M.Phil. Ph.D. Doctor of Engineering (Japan)

4. Teaching and Research Experience

Teaching: 9 years
Research: 14 years

5. Current Area of Research

Self-assembled monolayers of organosulfur, porphyrin and phthalocyanine compounds-heterocyclic conducting polymers-metal nanoparticles-synthesis-fabrication of films-application to chemical and biochemical sensors-gas sensors-electrochromic windows

6. Research Guidance

Ph.D.

Guided: 4

Dr. Palanisamy Kalimuthu (Assistant Professor, GRI)
Dr. A. Sivanesan (Post-doctoral fellow at University of Greifswald, Germany)
Dr. Palraj Kalimuthu (Post-doctoral fellow at Queensland University, Australia)
Dr. P. Kannan (Post-doctoral fellow at Nanyang Technological University, Singapore)

Guiding: 6

Mr. A. John Jeevagan (UGC-Meritorious Fellow)

Mr. A. Brillians Revin (GRI-Research Fellow)

Mr. P. Muthukumar (DRDO-Research Fellow)

Mr. N. Vasimalai (UGC-Meritorious Fellow)

Mr. M. Amal Raj (CSIR-JRF)

Mr. A. Kesavan (CSIR-JRF)

7. Research Projects undertaken

Completed Projects: 3

S.No.	Title of the Project	Funding Agency	Amount (Rs. In lacs)	Period
1	Self-Assembled Aromatic Thiol Monolayers and Mixed Monolayers for Biosensors	Department of Science and Technology, New Delhi	9.55	3 years (2003-2006)
2	Electrocatalytic and Electrochromic Properties of Bis(phthalocyaninato) Lanthanide Complexes Modified Electrodes	Council of Scientific and Industrial Research (CSIR), New Delhi	8.00	3 years (2005-2008)
3	Electrodes Coated with Monolayer Protected Metal Particles for Electrocatalytic Applications	University Grants Commission (UGC), New Delhi	5.21	3 years (2006-2009)

Ongoing Projects: 2

S.No.	Title of the Project	Funding Agency	Amount (Rs. In lacs)	Period
1	Synthesis of functionalized gold nanoparticles and their self-assembly on electrode substrates for sensing of biomolecules	Department of Science and Technology under Nanomission, New Delhi	35.52	3 years (2009-2012)
2	Optochemical sensing of toxic gases using thin films of porphyrin and phthalocyanine derivatives on solid substrates	Defence Research and Development Organization (DRDO), New Delhi	14.91	3 years (2009-2012)

8. List of Publications (2004-till date)

a) Papers Published in International/National Refereed Journals

h-index:11

61. Fabrication of conducting polymer-gold nanoparticles film on electrodes using monolayer protected gold nanoparticles and its electrocatalytic application
P. Kannan and [S.A. John](#)
Electrochim. Acta (2011) doi:10.1016/j.electacta.2011.06.004
60. Selective determination of 3,4-dihydroxyphenylacetic acid in the presence of ascorbic acid using 4-(dimethylamino)pyridine capped gold nanoparticles immobilized on gold electrode
M. Amal Raj, B. Revin and [S.A. John](#)
Colloids and Surfaces B: Biointerfaces (2011) doi:10.1016/j.colsurfb.2011.05.039
59. Highly sensitive detection of HCl gas using a thin film of meso-tetra(4-pyridyl) porphyrin coated glass slide by optochemical method
P. Muthukumar and [S.A. John](#)
Sensors and Actuators B: Chemical (2011) in press
58. Ultrasensitive and selective spectrofluorimetric determination of Hg(II) using a dimercaptiothiadiazole fluorophore
N. Vasimalai and [S.A. John](#)
J. Luminescence (2011) 10.1016/j.jlumin.2011.06.033
57. Synthesis, characterization and electrocatalytic activity of fused gold nanoparticles
P. Kannan and [S.A. John](#)
J. Nanosci. Nanotech. 11 (2011) 2142.
56. Selective determination of norepinephrine in the presence of ascorbic and uric acids using an ultrathin film modified electrode
P. Kalimuthu and [S.A. John](#)
Electrochim. Acta 56 (2011) 2428.
55. Selective determination of 3,4-dihydroxyphenylacetic acid in the presence of ascorbic and uric acids using polymer film modified electrode
P. Kalimuthu and [S.A. John](#)
J. Chem. Sci. 2011 (in press)

54. Direct growth of Gold Nanorods on Gold and Indium Tin Oxide Surfaces: Spectral, Electrochemical and Electrocatalytic Studies
P. Kannan, S. Sampath and [S.A. John](#)
J. Phys. Chem. C 114 (2010) 21114.
53. *In-situ* Fabrication of *meso*-Tetrakis(4-sulfonatophenyl)porphyrin Nanostructures with Excitonic Absorption on Glass Substrate
Palanisamy Kalimuthu and [S.A. John](#)
ACS Applied Materials and Interfaces, 2 (2010) 3348.
52. Selective determination of homocysteine at physiological pH using nanostructured film of aminothiadiazole modified electrode
Palraj Kalimuthu and [S.A. John](#)
Bioelectrochemistry 79 (2010) 168.
51. Studies on ligand exchange reaction of functionalized mercaptothiadiazole compounds onto citrate capped gold nanoparticles
P. Kalimuthu and [S.A. John](#)
Mat. Chem. Phys. 122 (2010) 380
50. Selective electrochemical determination of paracetamol using nanostructured film of functionalized thiadiazole modified electrode
P. Kalimuthu and [S.A. John](#)
Electroanalysis 22 (2010) 303.
49. Simultaneous determination of ascorbic acid, dopamine, uric acid and xanthine using a nanostructured polymer film modified electrode
P. Kalimuthu and [S.A. John](#)
Talanta 80 (2010) 1686.
48. Highly sensitive electrochemical determination of nitric oxide using fused spherical gold nanoparticles modified ITO electrode
P. Kannan and [S.A. John](#)
Electrochim. Acta 55 (2010) 3497.
47. Highly sensitive determination of hydroxylamine using fused gold nanoparticles immobilized on sol-gel film modified gold electrode
P. Kannan and [S.A. John](#)
Anal. Chim. Acta 663 (2010) 158.

46. Highly Sensitive Electrochemical Sensor for Nitric Oxide Using the Self-Assembled Monolayer of 1,8,15,22-Tetraaminophthalocyanatocobalt(II) on Glassy Carbon Electrode
A. Sivanesan and [S.A. John](#)
Electroanalysis 22 (2010) 639.
45. Nanostructured aggregates of meso-tetramesitylporphyrin on solid substrate
Palanisamy Kalimuthu, [S.A. John](#)
Langmuir 25 (2009) 12414.
44. Leaflike structured multilayer assembly of dimercaptotriazole on gold electrode
Palraj Kalimuthu, Palanisamy Kalimuthu and [S.A. John](#)
J. Phys. Chem. C 113 (2009) 10176.
43. Selective electrochemical sensor for folic acid at physiological pH using ultrathin electropolymerized film of functionalized triazole modified glassy carbon electrode
P. Kalimuthu and [S.A. John](#)
Biosensors and Bioelectronics 24 (2009) 3575.
42. Adsorption thermodynamics and kinetics study for the self-assembly of,8,15,22-tetraminophthalocyanatocobalt (II) on glassy carbon surface
A. Sivanesan and [S.A. John](#)
Electrochim. Acta 54 (2009) 7458.
41. Nanostructured electropolymerized film of 5-amino-2-mercapto-1,3,4-thiazole on glassy carbon electrode for the selective determination of L-cysteine
P. Kalimuthu and [S.A. John](#)
Electrochem. Commun. 11 (2009) 367.
40. Determination of nanomolar uric and ascorbic acids using enlarged gold nanoparticles modified electrode
P. Kannan and [S.A. John](#)
Anal. Biochem. 386 (2009) 65.

39. Simultaneous determination of epinephrine, uric acid and xanthine in the presence of ascorbic acid using an ultrathin film of 5-amino-1,3,4-thiadiazole modified electrode
P. Kalimuthu and [S.A. John](#)
Anal. Chim. Acta 647 (2009) 97.
38. Short time preparation and electrochemical properties of a single layer of tetraoctyl-ammonium bromide capped Au nanoparticles on dithiol self-assembled monolayer modified Au electrode
[S.A. John](#) and T. Sagara
J. Electroanal. Chem. 633 (2009) 135.
37. Electropolymerized film of functionalized thiadiazole on glassy carbon electrode for the simultaneous determination of ascorbic acid, dopamine and uric acid
P. Kalimuthu and [S.A. John](#)
Bioelectrochemistry 77 (2009) 13.
36. Modification of electrodes with nanostructured functionalized thiadiazole polymer film and its application to the determination of ascorbic acid
P. Kalimuthu and [S.A. John](#)
Electrochim. Acta 55 (2009) 183.
35. Highly sensitive and selective amperometric determination of nitrite using electropolymerized film of functionalized thiadiazole on glassy carbon electrode
P. Kalimuthu and [S.A. John](#)
Electrochem. Commun. 11 (2009) 1065.
34. Simultaneous determination of paracetamol and ascorbic acid using tetrabutylammonium capped gold nanoparticles immobilized on 1,6-hexanedithiol modified Au electrode
S.A. Nair, [S.A. John](#) and T. Sagara
Electrochim. Acta 55 (2009) 183.
33. Electrochemical and spectral studies of self-assembled monolayer of 1,8,15,22-tetraminophthalocyanatocobalt (II) on indium tin oxide surface
A. Sivanesan and [S.A. John](#)
J. Electroanal. Chem. 634 (2009) 64.

32. Optochemical sensing of hydrogen chloride gas using meso-tetramesityl-porphyrin deposited glass plate
P. Kalimuthu and [S.A. John](#)
Anal. Chim. Acta 627 (2008) 247.
31. Selective electrochemical epinephrine sensor using self-assembled monomolecular film of 1,8,15,22-tetraaminophthalocyanatonickel(II) on gold electrode
A. Sivanesan and [S.A. John](#)
Electroanalysis 21 (2008) 2340.
30. Amino group positions dependent morphology and coverage of electropolymerized metallophthalocyanine (M = Ni and Co) films on electrode surfaces
A. Sivanesan and [S.A. John](#)
Electrochim. Acta 53 (2008) 6629.
29. Synthesis of mercaptothiadiazole functionalized gold nanoparticles and their self-assembly on Au substrates
P. Kannan and [S.A. John](#)
Nanotechnology 19 (2008) 085602.
28. Amino group position dependent orientation of self-assembled monomolecular films tetraaminophthalocyanatocobalt(II) on Au surfaces
A. Sivanesan and [S.A. John](#)
Langmuir 24 (2008) 2186.
27. Size dependent electrocatalytic activity of gold nanoparticles immobilized onto three dimensional sol-gel network
P. Kalimuthu and [S.A. John](#)
J. Electroanal. Chem. 617 (2008) 164.
26. Charge-transfer interaction of aromatic thiols with 2,3-dichloro-5,6-dicyano-*p*-benzoquinone: spectral and quantum mechanical studies
P. Kalimuthu, A. Sivanesan and [S.A. John](#)
J. Phys. Chem. A 111 (2007) 12086.
25. Determination of L-dopa using electropolymerized 3,3',3'',3'''-tetraaminophthalocyanatonickel(II) film on glassy carbon electrode

A. Sivanesan and S.A. John
Biosensors and Bioelectronics 23 (2007) 708.

24. Electrocatalytic oxidation of ascorbic acid using a single layer of gold nanoparticles immobilized on 1,6-hexanedithiol modified gold electrode
A. Sivanesan, P. Kannan and S.A. John
Electrochim. Acta 52 (2007) 8118.
23. Uric acid determination in the presence of ascorbic acid using self-assembled sub-monolayer of dimercaptotriazole-modified gold electrodes
P. Kalimuthu, D. Suresh, S.A. John
Anal. Biochem. 357 (2006) 188.
22. Solvent dependent dimercaptotriazole monolayers on gold electrode for the simultaneous determination of uric acid and ascorbic acid
P. Kalimuthu, S.A. John
Electrochem. Commun. 7 (2005) 1271.
21. Simultaneous determination of uric acid and ascorbic acid using glassy carbon electrodes in acetate buffer solution
S.A. John
J. Electroanal. Chem. 579 (2005) 249.
20. Microenvironmental Effects on the Electrochemical and Photoelectrochemical Properties of Thionine Loaded Nafion Films
S.A. John and R. Ramaraj
J. Electroanal. Chem. 561 (2004) 191.

Papers Published During 1992-2003: 19

b) Published Chapters in Books

1. R. Ramaraj and S.A. John, Photoelectrochemical Reactions at Membranes and Chemically Modified Electrodes In ***Photo/Electrochemistry: Photobiology in the Environment, Energy and Fuel (PE&P in EEF)***, S. Kaneco (Ed.), Research Signpost, Trivandrum, India, 2005

2. A. Sivanesan and S.A. John, Nanostructured Materials for Electrochemical Biosensors: Chapter 4: **Gold Nanoparticles Modified Electrodes for Biosensors**, Yogeswaran Umasankar; S. Ashok Kumar; Shen-Ming Chen (Ed.), Nova Publishers, USA, 2009 (ISBN No. 978-1-60741-706-4).

7. Short Term Courses/Symposium/Conferences Attended

a) Selected Papers Presented at International Conferences

1. 2-amino-5-mercapto-1,3,4-thiadiazole modified Au electrode for the simultaneous determination of uric acid and ascorbic acid
D. Suresh and S. A. John
Second Triennial International Conference on Electroanalytical Chemistry and Allied Topics, Donapaula, Goa, February 2004.
2. Formation of thiol and thiolate terminated self-assembled heteroaromatic dithiol monolayers on gold electrode
S. Abraham John, Palraj Kalimuthu, T. Sagara
Japan Electrochemical Society Meeting, Doshisha University, Kyoto, September, 15-17, 2006.
3. Simultaneous amperometric determination of nanomolar uric and ascorbic acids using enlarged gold nanoparticles modified electrodes
P. Kannan, S. A. John
International Conference on Advanced Materials, Mahatma Gandhi University, Kottayam, Kerala, February 18-21, 2008.
4. Synthesis and Characterization and Electrocatalytic Activity of Fused Gold Nanoparticles
P. Kannan and S.A. John
International Conference on Recent Advances in Industrial Electrochemical Science and Technology, Mangalore, November 5-7, 2009.

b) Selected Papers Presented at National Conferences

1. Solvent dependent mercaptothiadiazole monolayers for the determination of ascorbic acid and uric acid.
Palraj Kalimuthu, S. A. John
8th CRSI National Symposium in Chemistry, Indian Institute of Technology, Bombay, February, 03-05, 2006.

2. Hydrogen Bonded Multilayer Assemblies of Heteroaromatic Dithiol on Gold Electrode
Palraj Kalimuthu, Palanisamy Kalimuthu and S.A. John
Annual IIT Madras Chemistry Symposium & The first Mid-year meeting of the Chemical Research Society of India, July 12-13, 2006, IIT-Madras, Chennai
3. Multilayers of 2,5-dimercapto-1,3,4-thiadiazole-Au nanoparticles on Au electrode by layer by layer assembly method.
P. Kannan, Palraj Kalimuthu, S. Abraham John
9th CRSI National Symposium in Chemistry, University of Delhi, February, 01-04, 2007.
4. Electropolymerized films of 5-amino-2-mercapto-1,3,4-thiadiazole for the simultaneous determination of ascorbic acid, uric acid and xanthine.
Palraj Kalimuthu, P. Kannan, S. A. John
14th National convention of electrochemists, Indira Gandhi Centre for Atomic Research Kalpakkam, December, 6th and 7th 2007.
5. Electrochemical sensing of L-cysteine using flat oriented phthalocyanine modified electrodes
A. Sivanesan, S. A. John
10th CRSI National Symposium in Chemistry, IISc, Bangalore, February 1-3, 2008
6. Microwave assisted synthesis of non-peripheral tetraaminophthalocyanato-copper(II) with Q band in the near IR region
Recent Trends in Coordination and Organometallic Chemistry, Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore, July 17-18, 2008.

8. Membership in Scientific Bodies/Association

Life Member of Chemical Research Society of India (**CRSI**)

Life member of Indian Society of Electroanalytical Chemistry (**ISEAC**)

Member of the Society for the Advancement of Science & Technology (**SAEST**),
Karaikudi

9. Reviewer for Journals

American Chemical Society
Elsevier
Royal Society of Chemistry
Wiley Inter-science
Springer

10. Recognition (Local, National, International)

Folic Acid sensor developed by our research group was highlighted in **Nature-INDIA** June 11, 2009

Recognized as a potential reviewer in the areas of electrochemical sensors, nanomaterials chemistry and analytical chemistry for many international journals including American Chemical Society and Elsevier Publishers

Painkiller sensor developed by our research group was highlighted in **Nature-INDIA**, January 17, 2010.

Mentor-DST-Inspire Programme

11. Fellowships Received

Year	Awards/Fellowship
1994	Senior Research Fellowship awarded by CSIR, New Delhi
1996	MONBUSHO Research Fellowship awarded by Govt. of Japan
1999	Post-Doctoral Fellowship awarded by JSPS, Govt. of Japan
2003	Young Scientist Project awarded by DST, New Delhi, India
2006	Invitation Fellowship for Foreign Researchers, JSPS, Govt. of Japan

12. Foreign Countries Visited

Countries Visited	Year	Purpose
Japan	Oct.1996- Sep.1999	Worked as a MONBUSHO Research Fellow to obtain a Doctor of Engineering Degree from Tokyo Institute of Technology, Japan
Japan	Nov.1999- Aug.2001	JSPS Post-Doctoral Fellow at Tokyo University of Agriculture & Technology, Japan
Japan	June 2006- Nov.2006	Visiting Scientist under Invitation Fellowship for Foreign Researchers under JSPS at Nagasaki University, Japan
Sri Lanka	Aug.20,2008- Aug.30,2008	In-Service Training for Plantation School Teachers, Hatton

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