


## CURRICULUM VITAE OF Dr.N.BALASUBRAMANIAN

Name	: <b>N.BALASUBRAMANIAN</b>	
Position	: <b>Professor</b>	
Year of Experience	: 20 years	
Education	: Ph.D (Chemical Engg), IIT Madras, <b>India</b> M.Tech (Chem. Engg), NIT Trichy, <b>India</b> B.Tech (Chem. Engg), CIT Coimbatore, <b>India</b>	
Address for Communication	<b>Electrochemical Engineering Laboratory</b> Department of Chemical Engineering, A.C. Tech Campus, Anna University, Chennai-600 025, India Ph. 91-44-2235 9190; h/p: 91-94449 54151 E-mail: <a href="mailto:nbsbala@annauniv.edu">nbsbala@annauniv.edu</a> , <a href="mailto:nbsbala@gmail.com">nbsbala@gmail.com</a> <a href="https://nbsbala.wixsite.com/balasubramanian">https://nbsbala.wixsite.com/balasubramanian</a>	

### Employment Record:

Period	Designation and Address
June 2012 – present	<b>Professor,</b> Department of Chemical Engineering, A.C.Tech Campus, Anna University, Chennai-600 025, <b>India</b>
Aug 2004 – June 2012	<b>Associate/Assistant Professor,</b> Department of Chemical Engineering A.C.Tech Campus, Anna University, Chennai-600 025, <b>India</b>
Nov-1997- Aug 2004	<b>Scientist,</b> Department of Pollution Control, Central Electrochemical Research Institute, Karaikudi-630 006, <b>India</b>
June 1996- Nov 1997	<b>Postdoctoral Research Associate,</b> Central Electrochemical Research Institute, Karaikudi-630 006, <b>India</b>
Sept 1995 - June 1996	<b>Manager-Development,</b> AGRO Pulping Machinery Ltd., T.Nagar, Madras-17, <b>India</b>

### Abroad Assignment:

Period	Country Visited	Purpose of visit
April 2019	<b>SOUTH KOREA</b> Inha University, Incheon,	Collaborative Research

Sept 2017	<b>PHILIPPINES</b> University of San Carlos	INSA Bilateral Exchange
Feb 2015	<b>NEW ZEALAND</b> The University of Auckland	Collaborative Research
May 2008 to Dec 2009	<b>MALAYSIA</b> <b>School of Engineering</b> Monash University Sunway Campus	Senior Lecturer
June 2008	<b>AUSTRALIA</b> Monash University Clayton Campus	Visiting Faculty
Nov 2007	<b>JAPAN</b> Department of Materials and Life Science Faculty of Science and Technology, Seikei University, Japan	Visiting Scientist
30.01 2001 to 25.01. 2003	<b>TAIWAN</b> Process System Engineering Group Department of Chemical Engineering National Cheng Kung University Tainan-70101, Taiwan	Post-doctoral Research

#### Area of Expertise:

- Hybrid Membrane bioreactor
- Battery and Fuel Cell
- Graphene based polymer nanocomposite for energy storage
- Capacitive Deionization [CDI]
- Graphene based biomaterials
- Electrochemical treatment of industrial effluent
- HAZOP and Fault Tree Analysis
- Chemical Process Safety

#### Membership of professional bodies:

- **Member:** The Electrochemical Society (*Mem No. 343303*) **USA**
- **Associate Member,** Institute of Chemical Engineers (*Mem No:99941065*) **UK**
- **Fellow:** International Congress of Chemistry and Environment, **India**
- **Life Member:** Society for Advancement of Electrochemical Science and Technology, **India**
- **Member:** Indian Institute of Chemical Engineers, **India**

#### Awards/Honors:

- **INSA Bilateral Exchange** Programme *Fellowship* 2012, **INDIA**.
- **Distinguished PVC's award for Excellence in Research (2008)**, Monash University Sunway, **Malaysia**.
- Recipient of **National Science Council Fellowship** (2001-2002), **Taiwan**.

- 2<sup>nd</sup> prize **CSIR Young Scientist paper presentation** (1996), CECRI, Karaikudi, **India**.
- **Research Group Leader** – Chemical and Sustainable Processing Engineering [CSPE], Monash University Sunway, Malaysia (**2008-2009**).

<b>Ongoing Projects:</b>				
<b>Sl. No.</b>	<b>Project Title</b>	<b>Name of Funding Agency/Role</b>	<b>Budget (₹)</b>	<b>Period/Status</b>
<b>a) International Funding</b>				
1.	Production of JP-8 Range Fuels and Chemicals from Pyrolysis bio-oil Using Nanostructured Catalyst	<b>DST – India- Norway Co-PI</b>	5200000	<b>2019-2022  Ongoing</b>
2.	Functionalized Polymer /Ceramic Matrix Hybrid Composite (P/C-MHC) Membranes for Environmental Applications	<b>DST-Indo- Korea (M.H.No 10.11.11)  Principal Investigator</b>	2905000	<b>2018-2020  Ongoing</b>
3.	Recovery of hydrogen and elemental sulfur from hydrogen sulfide	<b>India – PI, UAE (M.H.No. 10.7.54) Principal Investigator</b>	2479000	<b>2015-2019  Ongoing</b>
4.	Polyethylene dioxy-thiophene (PEDOT /N-doped graphene composite for high performance super capacitors application	<b>UGC- INZEC (MH.No.10.2.50) Principal Investigator</b>	2142000	<b>2014-2016  Completed</b>
<b>b) National Funding</b>				
1	Study on polymeric reaction kinetics using dielectric properties	<b>ISRO –Respond Concept note Principal Investigator</b>	910000	<b>2019-2020  Ongoing</b>
2	Development of anode from Petroleum Pitch for High Temperature Electrolysis	<b>DST- WMT (M.H.No.10.1.100) Principal Investigator</b>	1050000	<b>2017-2019  Ongoing</b>
3	Development of Hybrid photocatalytic membrane bioreactor for textile wastewater Treatment	<b>DST-WTI (M.H.No.10.1.80) Co-PI</b>	3503000	<b>2016-2019  Ongoing</b>
4	Petroleum Pitch as a Binder material for anode manufacturing	<b>UGC (M.H.No.10.2.52) Principal Investigator</b>	1495000	<b>2015-2018  Completed</b>
5	Electrooxidation integrated ozonated membrane bioreactor for mitigated fouling of membrane	<b>DST WOS-A M.H.No.10.1.69 Mentor</b>	1840000	<b>2014-2017  Completed</b>

6	Improved chrome Recovery System Integrated Concepts	<b>MoEF</b> (M.H.No.10.7.47) <b>Principal Investigator</b>	630000	2013-2016 <b>Completed</b>
7	Development of integrated membrane reuse	<b>DST/WTI</b> (M.H.No.10.1.62) <b>Principal Investigator</b>	3026000	2013-2016 <b>Completed</b>
8	Development of hybrid membrane bioreactor for effluent treatment	<b>DST-WOS A</b> (M.H.No.10.1.41) <b>Mentor</b>	1360000	2011-2014 <b>Completed</b>
<b>C) Infrastructure Funding</b>				
1	Centre for Advanced Studies	<b>UGC</b> (M.H.No.6.2.134) <b>Co-Coordinator</b>	16250000	2015-2020 <b>Ongoing</b>

<b>International/ National Collaboration:</b>	
Name of Country	Collaborator
<b>Abu Dhabi</b>	<b>Dr. C. Srinivasakannan</b> The Petroleum Institute, <b>Abu Dhabi</b>
<b>Korea</b>	Yun Suk Huh, Ph.D. Department of Biological Engineering College of Engineering Inha University, Incheon, <b>Korea</b> 402-751
<b>Norway</b>	Dr. R Tschentscher, SINTEF, Materials & Chemistry, Process, Intensification and Catalysis Forskingsveien 1 0373 Oslo <b>Norway</b>
<b>New Zealand</b>	Dr. PengCao The University of Auckland, Private Bag -92019, Auckland-1142, <b>New Zealand</b>
<b>Indonesia</b>	Joni I.M Professor Instrumentation Systems and Functional Material Processing Laboratory, Department of Physics, Faculty of Mathematics and Natural Sciences, Padjadjaran University, <b>Indonesia</b>

**Theses guided:**  
Ph.D : 15 (completed) MS/MTech : 41 (Completed)

**PUBLICATIONS:**

*No of Book/Book Chapter written* : 2  
*No of papers published in National journal* : 0

**CITATION:**



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## Author details

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Balasubramanian, Natesan

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Author ID: 57136420200 ⓘ

<http://orcid.org/0000-0003-0763-8595>

Affiliation(s): ⓘ

Anna University, Chennai, India View more ▾

Other name formats: Balasubramanian, N. Natesan, Balasubramanian

Subject area:

- Environmental Science
- Chemical Engineering
- Materials Science
- Engineering
- Chemistry
- Energy
- Biochemistry, Genetics and Molecular Biology
- Physics and Astronomy
- Earth and Planetary Sciences
- Agricultural and Biological Sciences
- Medicine
- Immunology and Microbiology
- Pharmacology, Toxicology and Pharmaceutics
- Computer Science

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### Balasubramanian N

Anna University  
 Advanced Oxidation  
 Smart materials for Battery and fuel cell photocatalysis

	All	Since 2014
Citations	2862	1952
<i>h</i> -index	27	23
<i>i10</i> -index	57	47

TITLE	CITED BY	YEAR
<a href="#">Electrochemical oxidation of textile wastewater and its reuse</a> N Mohan, N Balasubramanian, CA Basha Journal of hazardous materials 147 (1-2), 644-651	337	2007
<a href="#">Activation of palm shells by phosphoric acid impregnation for high yielding activated carbon</a> WC Lim, C Srinivasakannan, N Balasubramanian Journal of Analytical and Applied Pyrolysis 88 (2), 181-186	162	2010
<a href="#">Arsenic removal from industrial effluent through electrocoagulation</a> N Balasubramanian, K Madhavan Chemical Engineering & Technology: Industrial Chemistry-Plant Equipment ...	150	2001

### Book Chapter:

Electrocoagulation/Electroflotation: fundamentals, present and future perspectives in 'Electrocatalysis' in Electrolysis: Theory, Types and Application,

**List of papers published during 2015-2019:**

1. Sathya, U., Keerthi, Nithya, M., **Balasubramanian, N.** Evaluation of advanced oxidation processes (AOPs) integrated membrane bioreactor (MBR) for the real textile wastewater treatment, *Journal of Environmental Management* (2019) 246, 768-775
2. Harshini Priyaa, V.S., Saravanathamizhan, R., **Balasubramanian, N.** Preparation of biomass based carbon for electrochemical energy storage application *Journal of Electrochemical Science and Technology*, (2019)10 (2), 159-169
3. Saravanabhavan, S.S., Rethinasabapathy, M., Zsolt, S., Kalambettu, A.B., Elumalai, S., Janakiraman, M., Huh, Y.S., Natesan, B. Graphene oxide functionalized with chitosan based nanoparticles as a carrier of siRNA in regulating Bcl-2 expression on Saos-2 & MG-63 cancer cells and its inflammatory response on bone marrow derived cells from mice, *Materials Science and Engineering C*, (2019) 99, 1459-1468
4. Shanmuga Sundar, S., Kannan, N., Sundaravadivel, E., Zsolt, S., Mukunthan, K.S., Manokaran, J., Narendranath, J., Kamalakannan, V.P., Kavitha, N.P., Prabhu, N.V., **Balasubramanian, N.**, Study on the inflammatory response of PMMA/polystyrene/silica nanocomposite membranes for drug delivery and dental applications(*PLoS ONE* (2019) 14:3 (e0209948) DOI: 10.1371/journal.pone.0209948) *PLoS ONE* (2019) 14, 4.
5. Shanmugasundar, S., Kannan, N., Sundaravadivel, E., Zsolt, S., Mukunthan, K.S., Manokaran, J., Narendranath, J., Kamalakannan, V.P., Kavitha, P., Prabhu, V., **Balasubramanian, N.** Study on the inflammatory response of PMMA/polystyrene/silica nanocomposite membranes for drug delivery and dental applications *PLoS ONE*, (2019), 14, 3.
6. Palani, K.N., Saravanan, D., Palaniappan, K.V., Sundar, S., **Balasubramanian, N.**Development of sequential batch ozonated adsorptive membrane bioreactor to mitigate fouling with reduced energy consumption *Korean Journal of Chemical Engineering* (2019) ,36, 2, 265-271.
7. Nivedha Ramanathan, R.M., **Balasubramanian, N.**, Chithra, K. Biogas from confectionery wastewater with the application of ultrasound pre-treatment, *Energy Sources, Part A: Recovery, Utilization and Environmental Effects* (2019).
8. Vanitha, M., Joni, I.M., Camellia, P., **Balasubramanian, N.** Tailoring the properties of cerium doped zinc oxide/reduced graphene oxide composite: Characterization, photoluminescence study, antibacterial activity, *Ceramics International*, (2018), 44, 16, 19725-19734.
9. I., M.J., Vanitha, M., Camellia, P., **Balasubramanian, N.** Augmentation of graphite purity from mineral resources and enhancing % graphitization using microwave irradiation: XRD and Raman studies *Diamond and Related Materials* (2018), 88, 129-136.
10. Nithya, M., Praveen, K., Saral sessal, S., Sathya, U., **Balasubramanian, N.**, Pandurangan, A. Green synthesis of Fe<sub>2</sub>O<sub>3</sub>/BiPO<sub>4</sub> composite and its biopolymeric beads for enhanced photocatalytic application, *Journal of Materials Science: Materials in Electronics* (2018), 29, 17, 14733-14745.
11. Kannan, N., Shanmuga Sundar, S., Balaji, S., Amuthan, A., Anil Kumar, N.V., **Balasubramanian, N.** Physicochemical characterization and cytotoxicity evaluation of mercury-based formulation for the development of anticancer therapeutics (*PLoS ONE* (2018) 13:4 (e0195800) DOI: 10.1371/journal.pone.0195800) *PLoS ONE*, (2018), 13, 6.
12. Kannan, N., Shanmuga, S.S., Balaji, S., Amuthan, A., Kumar, A.N.V., **Balasubramanian, N.** Physicochemical characterization and cytotoxicity evaluation of mercury-based formulation for the development of anticancer therapeutics, *PLoS ONE*, (2018), 13, 4.

13. Vanitha, M., **Balasubramanian, N.**, Joni, I.M., Panatarani, C. Detection of mercury ions using L-cysteine modified electrodes by anodic stripping voltammetric method AIP Conference Proceedings, (2018), 1927.
14. Raji Karunakaran, J., Janakiraman, M., Jonna, N., Natesan, B., Nallamuthu, P. A PDDA functionalized nitrogen and sulphur doped graphene composite as the counter electrode for dye-sensitized solar cells, *New Journal of Chemistry*, (2018), 42, 12, 10184-10190.
15. Vadivel, S., Saravanakumar, B., Kumaravel, M., Maruthamani, D., **Balasubramanian, N.**, Manikandan, A., Ramadoss, G., Paul, B., Hariganesh, S. Facile solvothermal synthesis of BiOI microsquares as a novel electrode material for supercapacitor applications, *Materials Letters*, (2018) 210, 109-112.
16. Vijayakumar, V., Saravanathamizhan, R., **Balasubramanian, N.** Modeling of tubular electrochemical reactor for dye removal, *Journal of Engineering Science and Technology*, (2017) 12, 6, 1506-1513.
17. Ibrahim, D.S., Sami, N.A., **Balasubramanian, N.** Effect of barite and gas oil drilling fluid additives on the reservoir rock characteristics, *Journal of Petroleum Exploration and Production Technology*, (2017), 7, 1, 281-292.
18. Palani, R., Abdulgani, A., **Balasubramanian, N.** Treatment of tannery effluent using a rotating disc electrochemical reactor, *Water Environment Research*, (2017), 89, 1, 77-85.
19. Manokaran, J., Narendranath, J., Muruganatham, R., **Balasubramanian, N.** Nitrogen doped graphene supported Pt-Pd nanoparticle modified GC electrode for electrochemical determination of tramadol and paracetamol, *Indian Journal of Chemistry - Section A Inorganic, Physical, Theoretical and Analytical Chemistry*, (2017), 56A, 1, 63-68.
20. Bharathi, P., **Balasubramanian, N.**, Anitha, S., Vijayabharathi, V. Development of gold nanoparticles supported membrane as an efficient material for protein detection, *Journal of Environmental Biology*, (2016), 37, 6, 1415-1420.
21. Bharathi, P., **Balasubramanian, N.**, Anitha, S., Vijayabharathi, V., Bhuvenswari Improvement of membrane system for water treatment by synthesized gold nanoparticles, *Journal of Environmental Biology*, (2016), 37, 6, 1407-1414.
22. Vadivel, S., Naveen, A.N., Theerthagiri, J., Madhavan, J., Santhoshini Priya, T., **Balasubramanian, N.** Solvothermal synthesis of BiPO<sub>4</sub> nanorods/MWCNT (1D-1D) composite for photocatalyst and supercapacitor applications, *Ceramics International*, (2016), 42, 12, 14196-14205.
23. Kalaivani, K., **Balasubramanian, N.** Energy Consumption and Greenhouse Gas Emission Studies of Jatropha Biodiesel Pathway by Life Cycle Assessment in India *Indian Chemical Engineer*, (2016), 58, 3, 255-267.
24. Kumaran, R., Kumar, S.D., **Balasubramanian, N.**, Alagar, M., Subramanian, V., Dinakaran, K. Enhanced Electromagnetic Interference Shielding in a Au-MWCNT Composite Nanostructure Dispersed PVDF Thin Films, *Journal of Physical Chemistry C*, (2016), 120, 25, 13771-13778.
25. Vadivel, S., Theerthagiri, J., Madhavan, J., Santhoshini Priya, T., **Balasubramanian, N.** Enhanced photocatalytic activity of degradation of azo, phenolic and triphenyl methane dyes using novel octagon shaped BiOCl discs/MWCNT composite, *Journal of Water Process Engineering*, (2016), 10, 165-171.
26. Vijayakumar, V., Saravanathamizhan, R., **Balasubramanian, N.** Electrooxidation of dye effluent in a tubular electrochemical reactor using TiO<sub>2</sub>/RuO<sub>2</sub> anode, *Journal of Water Process Engineering*, (2016), 9, 155-160.
27. Panatarani, C., Fitriyadi, S., **Balasubramanian, N.**, Parmar, N.S., Joni, I.M. Preparation and characterizations of electroluminescent p-ZnO: N/n-ZnO: Ga/ITO thin films by spray pyrolysis method, *AIP Advances*, (2016), 6, 2.
28. Vadivel, S., Kamalakannan, V.P., Kavitha, N.P., Santhoshini Priya, T., **Balasubramanian, N.** Development of novel Ag modified BiOF squares/g-C<sub>3</sub>N<sub>4</sub> composite for photocatalytic applications, *Materials Science in Semiconductor Processing*, (2016), 41, 59-66.

29. Wang, L., Wu, B., Li, P., Zhang, B., **Balashubramanian, N.**, Zhao, Y. Kinetics for electro-oxidation of organic pollutants by using a packed-bed electrode reactor (PBER), *Chemical Engineering Journal*, (2016), 284, 240-246.
30. Priyadarshini, R., Vaishnavi, L., Murugan, D., Sivarajan, M., Sivasamy, A., Saravanan, P., **Balashubramanian, N.**, Rai, C.L. Kinetic studies on anaerobic co-digestion of ultrasonic disintegrated feed and biomass and its effect substantiated by microcalorimetry, *International Journal of Environmental Science and Technology*, (2015), 12, 9, 3029-3038.
31. Manokaran, J., Muruganantham, R., Muthukrishnaraj, A., **Balashubramanian, N.** Platinum-polydopamine @SiO<sub>2</sub> nanocomposite modified electrode for the electrochemical determination of quercetin *Electrochimica Acta* (2015), 168, 16, 24.
32. Muthukrishnaraj, A., Vadivel, S., Kamalakannan, V.P., **Balashubramanian, N.** Fe<sub>2</sub>O<sub>3</sub>/reduced graphene oxide nanorod as efficient photocatalyst for methylene blue degradation, *Materials Research Innovations*, (2015), 19, 4, 258-264.
33. Vanitha, M., Keerthi, Cao, P., **Balashubramanian, N.** Ag nanocrystals anchored CeO<sub>2</sub>/graphene nanocomposite for enhanced supercapacitor applications, *Journal of Alloys and Compounds*, (2015), 644, 534-544.
34. Vijayakumar, V., Keerthi, **Balashubramanian, N.** Heavy Metal Removal by Electrocoagulation Integrated Membrane Bioreactor, *Clean - Soil, Air, Water*, (2015), 43, 4, 532-537.
35. Saravanathamizhan, R., Harsha Vardhan, K., Gnana Prakash, D., **Balashubramanian, N.** RSM and ANN modeling for electro-oxidation of simulated wastewater using CSTER, *Desalination and Water Treatment*, (2015), 55, 6, 1445-1452.
36. Vanitha, M., Keerthi, Vadivel, S., **Balashubramanian, N.** Visible light photocatalysis of Methylene blue by graphene-based ZnO and Ag/AgCl nanocomposites, *Desalination and Water Treatment*, (2015), 54, 10, 2748-2756.
37. Muthukrishnaraj, A., Vadivel, S., Joni, I.M., **Balashubramanian, N.** Development of reduced graphene oxide/CuBi<sub>2</sub>O<sub>4</sub> hybrid for enhanced photocatalytic behavior under visible light irradiation, *Ceramics International*, (2015), 41, 5, 6164-6168.
38. Praveen, K.C., Arun, C., **Balashubramanian, N.**, Radha, K.V. Statistical modeling on COD removal from metal-working fluids through electrocoagulation process, *Desalination and Water Treatment*, (2015), 53, 10, 2593-2603.
39. Vadivel, S., Naveen, A.N., Kamalakannan, V.P., Cao, P., **Balashubramanian, N.** Facile large scale synthesis of Bi<sub>2</sub>S<sub>3</sub> nano rods-graphene composite for photocatalytic photoelectrochemical and supercapacitor application, *Applied Surface Science*, (2015), 351, 635-645.
40. Muthukrishnaraj, A., Manokaran, J., Vanitha, M., Thiruvengadaravi, K.V., Baskaralingam, P., **Balashubramanian, N.** Equilibrium, kinetic and thermodynamic studies for the removal of Zn(II) and Ni(II) ions using magnetically recoverable graphene/Fe<sub>3</sub>O<sub>4</sub> composite, *Desalination and Water Treatment*, (2015), 56, 9, 2485-2501.
41. Surya Prabha, M., Divakar, K., Deepa Arul Priya, J., Panneer Selvam, G., **Balashubramanian, N.**, Gautam, P. Statistical analysis of production of protease and esterase by a newly isolated *Lysinibacillus fusiformis* AU01: purification and application of protease in sub-culturing cell lines, *Annals of Microbiology*, (2015), 65, 1, 33-46.