

## **PROFILE**

**Name** : M KANAGASABAPATHY  
**Email** : rrcmks@gmail.com  
**Mobile** : +91 9443862183



## **ACADEMIC PROFILE**

#	Degree	Institution	Month & Year	Percentage of marks	Rank
1.	B.Sc. (Chemistry)	Madurai Kamaraj University, Madurai	June 1990	80.2%	III
2.	M.Sc. (Chemistry)		June 1992	76.7%	II
3.	M.Phil. (Chemistry)		August 1993	77.3%	I Gold Medalist
4.	Ph.D. (Industrial Chemistry)	<u>Central Electrochemical Research Institute,</u> Council for Scientific and Industrial Research Karaikudi.	July 2009	<b><u>Research supervisor</u></b> Dr. J. Sobha Deputy Director Senior Principal Scientist EMFT Division, CECRI	

## **TEACHING PROFILE**

#	Designation and Institution	Period of service
1.	Lecturer (SF), Department of PG Chemistry, S. V. N. College, Madurai.	01-10-1993 to 05-09-1996 (2 years and 10 months)
2.	Lecturer, Department of Chemical Engineering, Priyadarshini Engineering College, Vaniyambadi.	06-09-1996 to 16-11-1997 (1 year and 2 months)
3.	Lecturer, Department of Chemical Engineering, Mohamed Sathak Engineering College, Kilakarai.	17-11-1997 to 31-05-2007* (9 years and 6 months)
4.	Assistant Professor, Department of Chemistry, Rajapalayam Rajus' College, Rajapalayam.	13-06-2007 to till date

\*Pursued Ph.D. in Full-Time at EMFT, Central Electrochemical Research Institute, Karaikudi, between May 2004 to May 2007 and worked under part time, weekend scheme in this period.

## **RESEARCH PROFILE**

### **RESEARCH AREAS**

Electrochemical fabrication of nano films for corrosion protection & electrode materials for Hybrid Supercapacitors and Batteries, Electrochemical sensors, Simulation of X-ray Diffraction patterns

**Research publications: 23 papers as a key contributor (*as on 01–Nov–2021*)**

**ORCID ID:** <https://orcid.org/0000-0003-4113-0701>

**Scopus ID:** 6504710448 <https://www.scopus.com/authid/detail.uri?authorId=6504710448>

**Google Scholar:** <https://scholar.google.co.in/citations?user=dFLjzY4AAAAJ&hl=en>

**Citations:** 91; h-index: 6 (*as on 01–Nov–2021*)

**Peer Reviewer in:** *Surface & Coatings Technology, Journal of Electroanalytical Chemistry and Science of the Total Environment (Elsevier)*

### **LIST OF RESEARCH PUBLICATIONS**

1. Electroplating of copper from non–cyanide electrolyte, R.M. Krishnan, M Kanagasabapathy, Sobha Jayakrishnan, *Plating & Surface Finishing*, 7 (1995) 56–59
2. Removal of Zn(II) from industrial effluents ion–exchange resin in an air agitated column, M Kanagasabapathy & Sobha Jayakrishnan, *Chemical Engineering World*, 11, (2004) 53–55.
3. Continuous Electrodeionization – Novel technology for wastewater management, M Kanagasabapathy & Sobha Jayakrishnan, *Chemical Engineering World*, 12 (2004) 118–121.
4. Effect of electrodeposition parameters on the anomalous co–deposition of zinc–cobalt alloys, M Kanagasabapathy & Sobha Jayakrishnan, *Acta Ciencia Ind.*, XXXII C (3), (2006) 287–291.
5. Modeling & simulation of binary distillation coloumn, M Kanagasabapathy & S K Masud Hossain, *Chemical Engineering World*, 9 (2006) 57–59.
6. Recent trends in electrogalvanizing for corrosion management in industries – zinc–cobalt alloy coatings, M Kanagasabapathy & Sobha Jayakrishnan, *Process & Plant Engineering.*, XXV, (1) (2007) 67–69.
7. Industrial zinc–iron alloy deposition for steel components, M Kanagasabapathy & Sobha Jayakrishnan, *Process & Plant Engineering*, XXVII, (2) (2009) 34–35.
8. Phase structure of zinc–iron alloy electrodeposits, M Kanagasabapathy & Sobha Jayakrishnan, *Electrokhimiya*, 47, Volume 1 (2011) 30–37.

9. Phase structure and morphology of zinc-iron alloy electrodeposits, M Kanagasabapathy & Sobha, Russian Journal of Electrochemistry, 47, (2011) 26–33.
10. Textural and morphological studies on zinc-iron alloy electrodeposits, M Kanagasabapathy & Sobha, Journal of Chemical Sciences, 123 (3) (2011) 357–364.
11. Modeling and microstructural studies on anomalous electrodeposition of zinc-iron alloy, M Kanagasabapathy & Sobha, Indian Journal of Chemical Technology, 18, (9) (2011) 343–350.
12. Current Density Distribution Studies in Manifold Dimensions, Journal of Chemical & Pharmaceutical Research, 4(2), (2012) 1173-1178.
13. Zinc-iron alloy electrodeposited coatings for steel corrosion protection, M Kanagasabapathy, and Sobha Jayakrishnan, Process & Plant Engineering, 30, 2 (2012) 33-37.
14. Textural analysis of  $\text{Fe}_x\text{Zn}_{(1-x)}$  alloys formed by electrodeposition and sol-gel techniques M Kanagasabapathy, Journal of Manufacturing Engineering, September, 7 (3), (2012) 129-133.
15. Numerical Modeling on Non-enzymatic, Potentiometric Glucose Sensor, M Kanagasabapathy, GNK Ramesh Babu, Praveen Linga and RM Gnanamuthu, Portugaliae Electrochimica Acta, 30(4), (2012) 295-306.
16. Galvanostatic cathodic polarization studies on anomalously co-electrodeposited  $\text{Ni}_{2-18}\text{Co}_{13-97}$  solid solution nano films, M Kanagasabapathy, GNK Ramesh Babu, , Surface & Coating Technology (Elsevier), 232, (2013) 188-197.
17. Numerical Modeling on Anodic Chronopotentiometric Transients for the Electrochemical Sensing of Methyl Salicylate, M. Kanagasabapathy, Y. Umasankar and G. N. K. Ramesh Babu, Analytical & Bioanalytical Electrochemistry, 6 (6) (2014) 745-762.
18. Methyl salicylate detection via electrochemical transients using nano spinel  $\text{Co}_3\text{O}_4$  films, M Kanagasabapathy, GNK Ramesh Babu, Yogeswaran Umasankar and RM Gnanamuthu, Journal of Electroanalytical Chemistry (Elsevier), 754, (2015) 57-64.
19. Structural Explorations of Microwave Assisted Nanocrystalline Ceria Synthesis, International Journal of ChemTech Research, 8 (2), (2015) 829-835.
20. Synthesis and characterization of nanocrystalline ceria powder ( $\text{CeO}_2$ ) by microwave induced combustion method, Int. Journal of Chemical Sciences, 13 (3), (2015) 1264-1276.
21. Chronopotentiometric deposition / dissolution kinetics and textural analysis of Ni-Fe Oxy hydroxide nano films, Journal of Applied Chemical Science Int. 7(3), (2016)193-201.
22. {hkl} indices crystal simulation program – Crystalsim, International Union of Crystallography (IUCR) 11 (2016) 26. (Online) <https://sourceforge.net/projects/crystalsim/>  
<https://www.iucr.org/resources/other-directories/software/crystalsim2>

23. Chronopotentiometric / chronoamperometric transient analysis of naproxen via electrochemically synthesized nano spinel  $\text{ZnFe}_2\text{O}_4$  films, M Kanagasabapathy and R.Sekar, Journal of Electroanalytical Chemistry (Elsevier), 832, (2019) 59-68.
24. Textural characteristics of galvanostatically fabricated nano  $\text{Mn}_{0.33\text{x}}\text{Fe}_{0.67\text{x}}\text{S}_\text{x}@\text{rGO}/\text{Cu}(200)$  composite films for high energy density hybrid supercapacitor electrodes, M Kanagasabapathy and R.Sekar, (Under Revision) Electrochimica Acta (Elsevier)

## **RESEARCH GUIDANCE**

Recognized Research Supervisor in Chemistry at Madurai Kamaraj University, Madurai (ID # 1510)

M.Phil. – 1 (Completed)      Ph.D. – 3 (Ongoing)

## **BOOKS PUBLISHED** (as on 1–Nov–2021)

### ***1. Electrochemical Basics of Rechargeable Batteries: Technical approach***

ISBN–13: 978–1484047460      (*International Edition*)

Publisher: CreateSpace, Amazon Co., UK. Publication Date: 4<sup>th</sup> May 2013.

### ***2. Mathematical modeling on Numerical data analysis for Science & Engineering***

ISBN–13: 978–1492983125      (*International Edition*)

Publisher: Tech–Center, USA. Publication Date: 26<sup>th</sup> Nov 2013.

### ***3. Introduction to wxMaxima for Scientific Computations***

ISBN–13: 978-9387284425      (*International Edition*)

Publisher: BPB Publications, New Delhi Publication Date: 3<sup>rd</sup> Sep 2018

### ***4. Electrochemical & Electrical basics for Capacitors and Supercapacitors***

ISBN–13: 979-8579819352      (*International Edition*)

Publisher: KDP, USA Publication Date: 4<sup>th</sup> Dec 2020

## **COMPUTER PROFICIENCY**

***(Coded for Electrochemical & XRD simulation studies)***

Python, MATLAB, wxMaxima, C, ChemSketch, MS-Visual Studio, VBA Macro, friCAS

## **COMPUTER PROGRAMS PUBLISHED**

Designed computer programs coded in Python, MATLAB and MS–Visual Studio for electrochemical and XRD parameters simulation, which are peer–reviewed & indexed by International Universities.

No.	Program	Description	University
1.	<b><i>ELECHEM</i></b>	Computation of ternary alloy electrodeposition process parameters, thickness, current distribution, Hull cell current density, current and energy efficiency etc.,	Electrochemical Science and Technology Information Resource (ESTIR), The Electrochemical Society, Inc. (ECS) and Solid-state electrochemistry
2.	<b><i>FARADAY</i></b>		Center for Electrochemical Sciences, Chemical Engineering Department, <b><i>Case Western Reserve University, Cleveland, Ohio. USA</i></b> Department of Chemistry, <b><i>University of North Carolina, Chapel Hill. USA</i></b>
Link: <a href="https://knowledge.electrochem.org/estir/pdi.htm#ref24">https://knowledge.electrochem.org/estir/pdi.htm#ref24</a> Download Link: <a href="https://www.enote.page/">https://www.enote.page/</a>			
3.	<b><i>Crystalsim</i></b> Crystal hack	{hkl} simulation for XRD data at 2-Theta polycrystalline materials.	<b><i>International Union of CRYSTALLOGRAPHY (IUCR)</i></b> Department of Biomedical and Molecular Sciences, Molecular Modeling and Crystallographic Computing Facility, <b><i>Queen's University, Kingston, Canada.</i></b> American Physical Society, National Science Digital Library, USA, <b><i>National Science Foundation (NSF)</i></b> , Science Education Resource Center, <b><i>Carleton College, Northfield, Minnesota, USA</i></b> Physics To Go, comPADRE
Links: <a href="https://www.iucr.org/resources/other-directories/software/crystalsim2">https://www.iucr.org/resources/other-directories/software/crystalsim2</a> <a href="https://serc.carleton.edu/resources/44407.html">https://serc.carleton.edu/resources/44407.html</a> <a href="http://pldserver1.biochem.queensu.ca/~rlc/pfd/links/cryst_links.shtml">http://pldserver1.biochem.queensu.ca/~rlc/pfd/links/cryst_links.shtml</a> Direct download link <a href="https://sourceforge.net/projects/crystalsim/">https://sourceforge.net/projects/crystalsim/</a>			
4.	<b><i>Graphixy</i></b>	Data extraction for XRD and spectral 2 D charts	<b><i>Softpedia</i></b> , Romania. SourceForge, California, USA
Links: <a href="https://www.softpedia.com/get/Science-CAD/Graphixy.shtml">https://www.softpedia.com/get/Science-CAD/Graphixy.shtml</a> <a href="https://sourceforge.net/projects/graphixy/">https://sourceforge.net/projects/graphixy/</a>			
5.	INVESTOCK	To back-test and to analyze, Indian stocks for 20+ years.	<b><i>SourceForge</i></b> , California, USA
Link: <a href="https://sourceforge.net/projects/investock/">https://sourceforge.net/projects/investock/</a>			

## **CERTIFICATE COURSES COMPLETED**

- 1. Python Data Structures by University of Michigan, USA Completed on 10<sup>th</sup> May 2020.*
- 2. Using Python for Research by Harvard University, USA Completed on 18<sup>th</sup> May 2020.*

## **INDUSTRIAL TECHNICAL CONSULTANCY SERVICES GIVEN**

1. Know-how for ‘Electrogalvanizing’ was given to Energie Capacitors, Rajapalayam and signed a MoU for transferring technical knowledge on May 2013.
2. Optimization of solvent dispersion for CNS Oil was given to Siva Industries, Rajapalayam.
3. Designing of Ion exchange resin columns for demineralized water, to Sheema industries, Rajapalayam on January and February 2015.
4. Technical as well as Instrumentation onsite consultancy services were given to Aravind Herbals Ltd. Rajapalayam since February 2014.
4. Consultancy services on ‘Anionic Liquid detergent formulation’, was given to Sheema industries, Rajapalayam on February 2016.
5. Know-how on ‘Metal & alloy cleaning powder formulation’, was given to Sri Srinivasa Traders, Rajapalayam on January 2018.
6. Designing and fabrication of electrode films and electrolytes for Symmetric / hybrid supercapacitors from January 2019 to till date to Energie Capacitors, Rajapalayam

## **UGC RESEARCH PROJECT**

UGC minor research project entitled, ‘Electrochemical and Microstructural Characteristic Studies on Zn-Fe alloy Electrodeposition For Corrosion Prevention of steel components’ (No. F. MRP-375/11 P. No. 315, Link No.3575) (MRP/UGC-SERO) was completed on March 2013.

## **SEMINARS / WEBINARS ORGANIZED**

Served as the Nodal coordinator, Tamilnadu State Council for Science and Technology, Chennai.

Conducted various ‘Scientific Awareness’ programmes as Coordinator funded by Tamilnadu State Council for Science and Technology, Chennai.

1. Creation of scientific awareness for Farmers on, 29-03-2009.
2. Creation of scientific awareness for Self-help women groups on 13-06-2009
3. Creation of scientific awareness for School students on, 11-07-2009

4. Presented a public awareness lecture on '*Electrochemical cells for solar energy*', Organized by Rajapalayam Entrepreneurs Club in association with Medium and small-scale industries Association on 20-1-13.

5. Organised five individual 'Hands-on training' programmes entitled, 'Application of Science and Technology in Rural Areas (ASTRA)' in association with Tamil Nadu State Council for Science and Technology, Directorate of Technical Education, Chennai, for young entrepreneurs, farmers, students, rural women, women self-help group members. More than 500 participants were benefitted through these training programmes. Themes of the sessions are:

No.	Theme	Date
1.	Hands-on Training on Honeybee Rearing	9-9-2017
2.	Training & Demonstration on Solar Energy Appliances	15-9-2017
3.	Self-Employment Training for Rural Women	22-9-2017
4.	Irrigation water management & Soil rejuvenation	25-9-2017
5.	Training on Herbal plantation & Trees sapling	28-9-2017

6. Served as the Convener to organize one day intercollegiate seminar '*Recent Trends in Chemistry*' in view of National Science Day celebrations conducted by Department of Chemistry on 26-2-2016.

7. Conducted National level online quiz on '*Fundamentals of Rechargeable Batteries*' from 27-5-2020 to 4-6-2020.

8. Served as the Convener to organize one day National webinar on '*Tips & tricks to crack IIT-JAM, CSIR-NET, GATE Exams*' on 23-7-2021.

### **SEMINARS / CONFERENCES PARTICIPATED & PAPERS PRESENTED**

*Participated / attended more than 100 Seminars / Conferences / Workshops.*

### **EXAMINER SHIP**

a) Tamilnadu Public Service Commission Examiner Panel and Chief examiner at RRC.

b) Served as Examiner / Question Paper Setter in Chemistry (UG / PG) for the following Institutions

1. Anna University (B.E. / B.TECH) Valuation, Karaikudi (Up to 2007)

2. Madurai Kamaraj University, Madurai and other Autonomous colleges such as,

VHNSN College, Virudhunagar, The Madura College, Madurai, SVN College, Madurai, HKRH College, Uthamapalayam, Kalasalingam University, Krishnankoil, Sri Kaliswari College, Sivakasi, SRNM College, Sattur, VVV College, Virudhunagar.

## **BOARD OF STUDIES**

Member in Board of studies – Chemistry Board (UG) – Madurai Kamaraj University, Madurai.

(From December 2017 to till date.)

## **ORIENTATION & REFRESHER COURSES ATTENDED**

1. Attended the UGC sponsored orientation course from 1–11–2008 to 28–11–2008, conducted at UGC Academic Staff College, Bharathidasan University, Tiruchirappalli.
2. Attended the UGC sponsored Refresher course entitled, ‘Recent advances in Chemistry’ from 3–11–2009 to 23–11–2009, conducted at UGC Academic Staff College and School of Chemistry Madurai Kamaraj University, Madurai.
3. Attended UGC Sponsored Summer Programme - Refresher Course in Environmental Sciences (ID) conducted by the UGC - Human Resource Development Centre and School of Environmental Sciences, Bharathiar University, Coimbatore from 10 –05–2017 to 30–05–2017.
4. Attended UGC-HRD sponsored Refresher Course (online) on, “Recent Advances in Chemical Sciences” conducted by the UGC - Human Resource Development Centre, Dr. Harisingh Gour University, Sagar from 17 –08–2020 to 29–08–2020.

## **MEMBERSHIPS**

1. Life member in ‘The Indian Society for Technical Education’ LM 47300 All India Council for Technical Education.
2. Active member in the Society for Advancement of Electrochemical Science and Technology (SAEST) A 1622.

## **ACADEMIC POSITIONS HOLD**

1. Member, Internal Quality Assurance Cell (June 2011 to September 2018)
2. Nodal Coordinator, RUSA, Component 6 (Rs. 4 Crores) (August 2016 to till date)
3. Administrator, PFMS, (March 2017 to September 2018)
4. Coordinator, Internal Quality Assurance Cell (September 2018 to December 2019)
5. President, Institution Innovation Council (December 2020 to September 2021)
6. Member, Internal Quality Assurance Cell (September 2021 to till date)



## **OTHER ACTIVITIES**

- Designed a website for Sci-Tech and Finance notes for students: <https://www.enote.page/>
- Written a book on '*Quotes to Conquer the Thoughts*' – Amazon, USA, UK  
<https://www.amazon.co.uk/Quotes-Conquer-Thoughts-Dr-Kanagasabapathy/dp/1514839857>  
ISBN: 978-1514839850
- Written an article entitled 'Soggy soap' on 24–9–2009 in 'The Hindu' (India's National Newspaper) on Science & Technology Edition.
- Written an article entitled 'Battery recharging' on 3–12–2009 in 'The Hindu' (India's National Newspaper) on Science & Technology Edition.
- Designed many computer programs, coded in MATLAB and MS–VB such as numerical simulations, Lagrange, Cubic Spline interpolations, Plot 3D, Basic Music Composer etc., reviewed and indexed by renowned computer program publishers:  
Link to the computer programs:  
<https://www.softpedia.com/publisher/Dr-M-Kanagasabapathy-PhD-84670.html>