

## CURRICULUM VITAE

**Dr. N. KUMARA SWAMY, M.Sc, Ph.D.**

### **OFFICIAL ADDRESS**

Assistant Professor of Chemistry, SJCE,  
J.S.S. Science & Technology University  
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### **RESIDANCE ADDRESS**

# 27, Archological Survey Layout  
Near Manava Bhavan  
Bogadi II-Stage, Bogadi-North,  
Mysore-570026.

### **OBJECTIVE:**

- To excel as a teacher and a researcher

### **PRESENT RESEARCH ACTIVITIES:**

- **Nano Materials and Electrochemical Biosensors Development:** Synthesis and applications of novel nanomaterials. Development of enzyme based biosensors for the detection and quantification of analytes of medical and environmental importance. Currently exploring the area of Dye Sensitized Solar Cell.

### **EDUCATIONAL QUALIFICATION:**

- **Doctor of Philosophy (Ph.D.)** in Bio-Technology was awarded from Jaypee Institute of Information Technology, U.P. in **2012**.
- **UGC (SLET):** Qualified in UGC (SLET) examination for Lectureship.

Examination	School/University	Subject/Area	Year	Class
Ph.D	University of Mysore, Karnataka.	Chemistry	2015- Todate	Pursuing
Ph.D	Jaypee Institute of Information Technology University, Noida (U.P)	Environmental Biotechnology	2012	Awarded
UGC (SLET)	Accredited to UGC, New Delhi.	Chemistry	1997	Qualified Lectureship
M.Sc	Manasagangotri, University of Mysore, Karnataka.	Physical Chemistry	1994	I
B.Sc	University of Mysore, Karnataka.	Physics, Chemistry Mathematics	1992	I
SSLC	Govt. High School, Arakalgud, Karnataka.	General	1987	I

## ACADEMIC/TEACHING EXPERIENCE:

- **Present Job:** Assistant Professor of Chemistry, SJCE, Mysore, & Research Coordinator at JSS Research Foundation, Mysore.

Place	Position	Service Duration	Responsibilities Held
Sri Jayachamarajendra College of Engineering, Mysore	Assistant Professor	04-10-10 To date	• <b>2010-Till date:</b> Teach Engineering Chemistry at B. Tech level.
JSS Research Foundation, Mysore	Research Coordinator	04-10-10 To date	• <b>2010-Till date:</b> Coordinating of activities of JSS Research Foundation
JSS Academy of Technical Education, Noida, Uttar Pradesh	Assistant Professor	01-09-09 to 08-09-10 (1.0 yr 7 days)	• <b>1998-1999:</b> Took responsibility to set up new Chemistry Laboratory • <b>1999:</b> Assistant Warden of Hostel.
	Senior Lecturer	01-11-06 to 31-08-09 (2.10 yrs)	• <b>2004-09:</b> Faculty-In-Charge of Chemistry Lab
	Lecturer	07-09-98 to 31-10-06 (8.1 yrs 24 days)	• <b>2005-06:</b> Faculty Coordinator of "Quizzoc Society" • <b>2008-09:</b> Coordinator for sessional examinations
Bahubali College of Engineering, Shravanabelagola	Lecturer	18-12-97 to 02-09-98 (0.8 yrs 14 days)	• <b>1997-98:</b> In-Charge Head of the Chemistry. Took responsibility of establishing the new Laboratory
National Institute of Engineering, Mysore	Guest Lecturer	05-11-94 to 09-08-97 (2.9 years)	• Taught Applied Chemistry course at B.E level.

## RESEARCH EXPERIENCE:

- **Jaypee Institute of Information Technology, Noida:** Worked as a research fellow on the topic "*Paper mill effluent: Decolorization and Detoxification studies using chemical and microbial methods*" at the Department of Biotechnology, Jaypee Institute of Information Technology, Noida, U.P, India, under supervision of **Dr. Indira P. Sarethy** during 2005-2012.
- **Hebrew University, Israel:** Carried out research on "*Molecular dynamics of unimolecular isomerization of CH<sub>3</sub>CN*" at the Institute of Chemistry, Hebrew University, Jerusalem, Israel, as a research fellow under **Prof. Raphael David Levine** during Aug 2000 - Jan 2004.

## INSTRUMENTAL TECHNIQUES KNOWN

- Chromatography (HPLC/UPLC)
- FT-IR Spectrometer, UV-visible Spectrometer
- PCR Machine, Gel Electrophoresis, SDS-PAGE & Gel DOC
- Cyclic Voltammetry, Chronoamperometry, Impedance Spectroscopy

## RESEARCH PROJECTS

1. A Major Research Project entitled “**Fabrication of polyphenol oxidase based biosensor and its performance evaluation for analysis of polyphenols**” sanctioned by DAE-BRNS scheme has been completed in March 2017 (**Amount: 26.07 Lakhs, Duration 2014-17**).
2. Submitted a research proposal entitled “**Development of low cost biocompatible dye sensitized solar cell using green synthesized nanomaterials and natural dyes**” is submitted to VGST for funding (Grant Amount: **Rs. 20.00 Lakhs**).

## PhD SUPERVISION DETAILS:

Supervising 03 students for PhD in Visvesvaraya Technological University (VTU), Belgaum.

No	Student Name	Course	University	Topic of Research Work	PhD Status
1.	Mr. S. Sandeep	Ph. D Chemistry	VTU, Belgaum	Fabrication of Polyphenol Biosensor and its Performance Evaluation	Thesis under Preparation
2.	Mr. A. S. Santhosh	Ph. D Chemistry	VTU, Belgaum	Green Synthesis of Silver nanostructures and their Applications	Thesis under Preparation
3.	Mrs. Vedavathy	Ph. D Chemistry	VTU, Belgaum	Design of Functional Polymer Composite Membranes for Biosensing Applications	Work under progress
4	Mr Mohan	Ph. D	JSS S&TU	Synthesis, Characterization and Applications of Perovskite Nanomaterials	Work under progress

## PUBLICATIONS :

- 1) Sandeep S, Santhosh A S, Kumara Swamy N, Suresh G S, Melo J S, “**Development of graphene nanoribbon and polyphenol oxidase enzyme based biosensor for the detection of catechol in different green tea samples**”, *Journal of Materials Chemistry B* (Royal Society of Chemistry), (Submitted, **2017**).
- 2) Sandeep S, Santhosh A S, Kumara Swamy N, Suresh G S, Melo J S, “**Detection of catechol using a biosensor based on biosynthesized silver nanoparticles and polyphenol oxidase enzyme**”, *Portugaliae Electrochimica Acta*, (Under Review, **2017**).
- 3) Sandeep S, Santhosh A S, Kumara Swamy N, Suresh G S, Melo J S, Nitin K S, “**Electrochemical detection of L-Dopa using crude Polyphenol oxidase enzyme immobilized on electrochemically reduced RGO-Ag nanocomposite modified graphite electrode**”, *Materials Science and Engineering B*, (Under Review, **2017**).
- 4) Sandeep A, Santhosh A S, Suresh GS, Melo J S and Kumara Swamy N, “**Electrochemical glucose biosensor based on biosynthesized silver nanoparticles and polyvinyl pyrrolidone modified graphite electrode**”, *Advanced Materials Letters*, (Accepted, **2017**).

- 5) Kumara Swamy N, Sandeep A, Santhosh A S, “**Conductive polymers and their nanohybrid transducers for electrochemical biosensors applications-A brief review**”, *Indian Journal of Advances in Chemical Science*, S2, 6-9 (2017).
- 6) Chamaraja N. A., C. B. Praveen Kumar, N. M. Vedamurthy, H. V. Kavya, D. S. Sahana, B. Megha, U. P. Bhavani, N. Kumaraswamy, “**Novel spectrophotometric method for the assay of hydrogen peroxide using sulfosalicylic acid as a chromogenic probe**”, *Indian Journal of Advances in Chemical Science*, S2, 38-41 (2017).
- 7) Anantharaman Shivakumar, C. S. Chidan Kumar, Praveen Kumar C B, Kumara Swamy N, “**Spectrophotometric determination of peroxidase Using N, N-diethyl-p-phenylene diamine sulphate and 3-Aminophenol as a chromogenic reagent: Application of the method to seeds of some fruits**”, *Chemical Data Collections*, 11-12C, 84-95 (2017).
- 8) Kumara Swamy N, Sandeep A, Santhosh A S, “**Enzyme Immobilization Methods and Role of Conductive Polymers in Fabrication of Enzymatic Biosensors**”, *Indian Journal of Advances in Chemical Science*, S2, 1-5 (2017).
- 9) Sandeep A, Santhosh A S, Kumara Swamy N, Chamaraja N. A, Nitin K. S, “**Redox and electron charge transfer characteristics of glassy carbon electrode modified with polyvinyl pyrrolidone and biosynthesized silver nanoparticles**”, *Indian Journal of Advances in Chemical Science*, S2, 10-13, (2017).
- 10) Sandeep A, Santhosh A S, Suresh GS, Melo J S and Kumara Swamy N, “**Green synthesis of hybrid silver nano structures using *Cassia occidentalis* plant leaf broth and their characterization**”, *Advanced Materials Proceedings*, 2(10), 639-642 (2017).
- 11) Sandeep A, Santhosh A S, Kumara Swamy N, Suresh G S, Melo J S, and Mallu P “**Biosynthesis of silver nanoparticles using *Convolvulus pluricaulis* leaf extract and assessment of their catalytic, electrocatalytic and phenol remediation properties**”, *Advanced Materials Letters*, 7(5), 383-389 (2016).
- 12) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, “**Effect of Sequential Treatment of Paper Industry Wastewater Using Aluminum Chloride and *Pseudomonas putida***”, *Indian Journal of Advances in Chemical Science*, S1, 226-229 (2016).
- 13) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, “**A Two-step Reduction of Color and Phenols from Paper Industry Wastewater using Copper Sulfate and *Pseudomonas putida***”, *Indian Journal of Advances in Chemical Science*, S1, 217-220 (2016).

- 14) Sandeep A, Santhosh A S, Kumara Swamy N, Suresh GS and Melo J S, “**Biosynthesis of silver nanoparticles using *Euphorbia geniculata* leaf extract and their characterization**”, *Proc. of Int. Conf. Matcon 16 (ISBN 978-93-80095-738)*, 314-316 (2016).
- 15) Sandeep A, Santhosh A S, Mahesh B, Kumara Swamy N, “**Green Synthesis, characterization and applications of metallic nanoparticles**”, *JSSCM Journal*, 4(1), 33-44 (2015).
- 16) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, “**Color and Phenols removal from Paper Mill Effluent by Sequential Treatment using Ferric chloride and *Pseudomonas putida***”, *International Journal of Pharma and Biosciences*, 3(2), 380-392, (2012).
- 17) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, “**Aerobic and Anaerobic Treatment of Paper Industry Wastewater**”, *Research in Environment and Life Sciences*, 4(4), 141-148, (2011).
- 18) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, “**Precipitation of Phenols from Paper Industry Wastewater Using Ferric Chloride**”, *Rasayan Journal of Chemistry*, 4(2), 452-456, (2011).
- 19) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, A chapter on “**Pulp and Paper Mill Wastewater and Its Treatment Approaches**” in the book “**Recent Progress in Environmental Biology**”, published by Oxford Book Co., New Delhi (2011).
- 20) Pratibha Singh, Kumara Swamy *et al.* “**Removal of Colour in Distillery Effluent (spent wash) by *Phanerochaete chrysosporium* and *Pseudomonas fluorescens***”, *Research in Environment and Life Sciences*, 3(1), 17-20 (2010).
- 21) Pratibha Singh, Kumara Swamy N *et al.*, “**Study of Physicochemical Characteristics of Anaerobically Digested Distillery Effluent and Its Impact on Seed Germination, Seedling Growth and Peroxidase Activity of Wheat**”, *Journal of Nature Conservation*, 19(2), 345-352, (2007).

#### CONFERENCE POSTER PRESENTATIONS:

- 1) Sandeep A, Suresh GS, Kumara Swamy N, Chamaraja N A and Nitin K S, Presented a paper on “**Redox and electron charge transfer characteristics of glassy carbon electrode modified with polyvinyl pyrrolidone and biosynthesized silver nanoparticles**” at 2 days National Conference on **Novel Polymeric Materials** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 15<sup>th</sup> and 16<sup>th</sup> September 2017.

- 2) Sandeep A, Suresh GS, Melo J S, Mallu P and Kumara Swamy N, Presented a paper on **“Degradation of crystal violet dye using biosynthesized silver nanoparticles with hydrogen peroxide”** at 2 days conference on **“Science and Technology for Education and Health Care”** held on 21<sup>st</sup> and 22<sup>nd</sup> Feb **2014**, at JSS College for Arts, Science and Commerce, Mysore.
- 3) Sandeep A, Suresh GS, Melo J S and Kumara Swamy N, Presented a paper on **“Biosynthesis and Applications of Metallic Nanoparticles”** at Two days National Conference on **“Recent Trends in Chemical Research”** held on January 3-4, **2014**, at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka.
- 4) Kumara Swamy N and Levine R. D, Presented a paper on **“Molecular Dynamics Simulation Study on CH<sub>3</sub>NC”** at Two days National Conference on **“Recent Trends in Chemical Research”** held on January 3-4, **2014**, at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka.
- 5) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, Presented a paper on **“Aerobic and Anaerobic Treatment of Paper Industry Wastewater”** in the National Seminar on **Reducing Carbon Foot Prints and its Impact on Global Warming** held between August 20-21, **2010**, at Rajasthan College of Engineering for Women, Jaipur, Rajasthan.
- 6) Kumara Swamy N and Mahesh B, Presented paper on **“Biochemical Transformation of Pentachlorophenol by Lignolytic Enzymes of *Paecilomyces species*”** at International Conference on **Recent Trends in Chemistry and Biochemistry** held on Dec 15-17, **2009**, at Dept. of Chemistry, Bangalore University, and Karnataka.
- 7) Kumara Swamy N, Pratibha Singh and Indira P. Sarethy, Presented a paper on **“Physicochemical characterization of paper mill effluent and its treatment using AlCl<sub>3</sub> and CaOCl<sub>2</sub>”** at National symposium on **Contemporary Environmental Problems and Biotechnological applications in their Management** held on March 7-8, **2008**, at School of Environmental Sciences, Jawaharlal Nehru University, New-Delhi.
- 8) Shivamuthy, Prabhu Swamy and Kumara Swamy N, *et al*, Presented a paper on **“Natural Fiber and Wood–Plastic Composites as alternatives for Wood, Plastics and Glass Polyester Composites”** at **National Conference** held on August 7-8, **2008**, at Ideal Institute of Technology, Ghaziabad, UP.

## **SHORT-TERM COURSES WORKSHOP/CONFERENCE/SEMINARS ATTENDED:**

- 1) Attended 2 days National Conference on **Novel Polymeric Materials** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 15<sup>th</sup> and 16<sup>th</sup> September 2017.
- 2) Attended 3 days International Conference on **Advanced Materials and Technology** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 26<sup>th</sup> and 28<sup>th</sup> May 2016.
- 3) Attended 3 days International Workshop on **Fluorescence Microscopy Image Acquisition, Processing and Analysis** organized by Department of Biotechnology, Sri Jayachamarajendra College of Engineering, Mysore, during 23<sup>rd</sup> and 26<sup>th</sup> February 2016.
- 4) Participated in a one day National Seminar on **Technological Advances in M-Health and Diagnosis of Diseases Using Retinal Imaging** held at JSS Research Foundation, Mysore, on 25<sup>th</sup> January 2016.
- 5) Attended and presented a paper in the International Conference on **Materials for the Millennium** held at the Department of Applied Chemistry, Cochin University of Science and Technology, Kochin, Kerala, during 14<sup>th</sup> to 16<sup>th</sup> January 2016.
- 6) Participated in 103<sup>rd</sup> meet of **The Indian Science Congress Association** held at the University of Mysore, Mysuru from 3<sup>rd</sup> to 7<sup>th</sup> January 2016.
- 7) Attended one day Seminar on **“Material Science and Nanotechnology** held at Departments of Chemistry, Vidya Vikas Institute of Engineering and Technology, Mysore, Karnataka, on 29<sup>th</sup> September 2015.
- 8) Attended 2 days National Seminar on **“Current Trends in Chemical Biology”** held at Departments of Chemistry, JSS College of Arts, Commerce & Science, Mysore, Karnataka on 2<sup>nd</sup> and 3<sup>rd</sup> March 2015.
- 9) Attended a 2 days State Level Seminar on **“Electrochemical Concepts: Materials for Energy Storage and Sensing”** held on 12<sup>nd</sup> and 13<sup>th</sup> February 2015, at Department of Chemistry, St. Joseph’s College, Bangalore.
- 10) Attended 5 days QIP Short Term Course on **“Nanostructured Carbon Doped Nanocomposites”** held at Advanced Nanoengineering Materials Laboratory, Indian Institute of Technology, Kanpur, during 29<sup>th</sup> December 2014 and 2<sup>nd</sup> January 2015.
- 11) Participated in One Week Faculty Develop Program on **“Testing and Characterization of Polymeric Materials”** held at Departments of Polymer Science and Technology, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 15<sup>th</sup> and 20<sup>th</sup> September 2014.

- 12) Attended 2 days Workshop on “**Dielectric Materials and Devices**” held at Departments of Electronics and Communication, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 25<sup>th</sup> and 26<sup>th</sup> July 2014.
- 13) Attended 2 days Workshop on “**Modern Trends in Chemical Research and their Applications**” held at Departments of Chemistry, NMAM Institute of Technology, Nitte, Karnataka on 10<sup>th</sup> and 11<sup>th</sup> July 2014.
- 14) Participated in 2 Days National Conference on “**Advances in Polymeric Materials (Energy, Environment, Health)**” held at Department of Polymer Science and Technology, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 25<sup>th</sup> and 26 April 2014.
- 15) Attended 2 days National Seminar on “**Material Science and Engineering**” held at Departments of Physics and Electronics, JSS College of Arts, Commerce & Science, Mysore, Karnataka on 21 and 22 March 2014.
- 16) Attended the one day Research Talk on **Brest Cancer-Its Cause, Detection and Therapy** held at Department of Biotechnology, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 17<sup>th</sup> February 2014.
- 17) Participated in a one day Workshop on **Recent Advances in Healthcare Management Using Hand-held Devices** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 23<sup>th</sup> January 2014.
- 18) Participated in 2 days International Conference on **Chemical Biology: Drug Discovery Programme** held at University of Mysore, Mysore, Karnataka, during 9<sup>th</sup> and 10<sup>th</sup> Jan 2014.
- 19) Participated in a 2 days National Conference on **Recent Trends in Chemical Research** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 3<sup>rd</sup> and 4<sup>th</sup> January 2014.
- 20) Participated in a 2 day workshop on **Emerging Trends in Nano-Electronics and Device Packaging** held at the Department of Electronics, National Institute of Engineering, Mysore, Karnataka, during 01<sup>st</sup> Sep- 1<sup>st</sup> October 2013.
- 21) Participated in a 2 day workshop on **Teaching, Examination and Evaluation** held at the Department of Environmental Engineering, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, on 17-18<sup>th</sup> August 2013.
- 22) Attended a 10 days training on **Chromatography, Molecular Biology and Bioinformatics** organized at the School of Biosciences and Technology, Vellore Institute of Technology, Vellore, Tamilnad, during 4<sup>th</sup>-15<sup>th</sup> June 2013.

- 23) Attended a one day workshop on **Basic Techniques in Chemical Analysis** held at the Department of Chemistry, JSS College for Arts, Science and Commerce, Mysore, on 17<sup>th</sup> February 2013.
- 24) Participated in a one day seminar on **Chemistry of Materials** held at the Department of Chemistry and Polymer Science and Technology, Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, on 25<sup>th</sup> November 2011.
- 25) Participated in a 3 days workshop on **Green Chemistry and Environment** held at R.V College of Engineering, Bangalore, Karnataka, during 1<sup>7th</sup> -1<sup>9th</sup> February 2011.
- 26) Participated in a 10 days workshop on **Recent Technologies in Genomics and Proteomics** held at Institute of Applied Medical Research, Ghaziabad, U.P, during 22<sup>nd</sup> -31<sup>st</sup> May 2007.
- 27) Attended a 3 days workshop on **Structure Based Drug Design** held at Dept. of Biotechnology, Jaypee University of Information Technology, Wakhanghat, Himachal Pradesh, during 18-20<sup>th</sup> December-2006.

#### **MEMBERSHIP OF PROFESSIONAL BODIES:**

Life Member of **Indian Society for Technical Education** (L44022) since 2004.

Life Member of **Indian Society of Analytical Scientists** (LMT-2012/08) since 2012.

Life Member of **Indian Science Congress Association** (L24904) since 2014.

#### **ADMINISTRATIVE AND OTHER ACTIVITIES:**

- Currently working as a coordinator of activities of JSS Research Foundation

##### *Seminars Coordinated/Organized Activities held:*

- 1) Coordinated and organized a one day National Seminar on **Technological Advances in M-Health and Diagnosis of Diseases Using Retinal Imaging** at JSS Research Foundation, Mysore, on 25<sup>th</sup> January 2016.
- 2) Coordinated and organized one day workshop on “**Modern Machine Learning Applications**” at JSS Research Foundation, Mysore, during 24<sup>th</sup> January 2015.
- 3) Coordinated and organized a two days National Conference on **Recent Trends in Chemical Research** held at Sri Jayachamarajendra College of Engineering, Mysore, Karnataka, during 3<sup>rd</sup> and 4<sup>th</sup> January 2014.
- 4) Coordinated and organized a one day workshop on **Recent Advances in Healthcare Management Using Hand-held Devices** held at JSS Research Foundation, Mysore, Karnataka, during 23<sup>th</sup> January 2014.