

1. **Name :** Dr. E. Rajkumar
2. **Designation :** Assistant Professor
3. **Educational Qualification :** M.Sc., M.Phil., PhD
4. **Courses taught at MCC:**

B.Sc: Basic Chemistry I and II , Chemistry of Non Metals, Allied Chemistry (Theory and Practical), Chemistry in Everyday Life, Introduction to Nano Chemistry, Environmental Science, Inorganic Qualitative Analysis.

M.Sc: Material Science, Coordination Chemistry, Environmental Chemistry, Scientific Research Methodology, Semi micro Inorganic Qualitative Analysis.

M.Phil: Scientific Research Methodology, Modern Instrumental Techniques, Inorganic Chemistry (Special Paper)

5. **Administrative Experience, if any, in MCC**

Department Library In-Charge

Department Placement Cell Officer

6. **Orientation and Refresher Courses Attended : NIL**

Short Term Course on "**Nanomaterials: Characterization & Application**" 18-22 November **2013**, at National Institute of Technical Teacher's Training Research (NITTTR), Chandigarh.

Science and Engineering Research Council (SERC) – SERC School on **GREEN CHEMISTRY – APPLICATION, RESEARCH ACTIVITIES AND RECENT TRENDS**, 14-27 December **2009**, At School of Chemistry, Madurai Kamaraj University, Madurai.

7. **Papers presented in National & International Seminars / Conferences**

1. DAE- BRNS 12th National Symposium on Radiation and Photochemistry (NSRP-2017, 2-4 March **2017**, Manipal University, Manipal.
2. International workshop on advanced functional materials and devices IWAFMD2017, 8-12 January **2017**, Manonmanian Sundranar University, Tirunelveli.

3. 13th DAE-BRNS Biennial Trombay Symposium on Radiation and Photochemistry incorporating 6th Asia Pacific symposium on Radiation and Photochemistry (TSRP-APSRC 2016) , 5-9 January **2016**, BARC, Mumbai.
4. National Convention of Chemistry Teachers (NCCT) along with National Symposium on Innovative Methods in Chemistry Education (IMCE) on Oct 8-10 2015 at Lucknow University, Lucknow
5. 8th CRSI-RSC Joint Symposium in Chemistry, **2014**, (Feb 6, 2014), Indian Institute of Technology, Bombay, Mumbai.
6. 16th CRSI National Symposium in Chemistry **2014**, Feb 7-9, 2014, Indian Institute of Technology, Bombay, Mumbai *Spectrochemical and Electrochemical Studies of Quinones with Ruthenium(II) Complex containing bathophenanthroline ligands.*
7. The 109th Korean Chemical Society (KCS) National Meeting, **2012**, Korea, International Exhibition Center (KINTEX), Ilsan, Korea, *Size-Dependent Interactions between Au Nanoparticles and DNA in Electrochemical Oxidation by Metal Complexes.*
8. The 14th Asian Chemical Congress, **2011**, Queen Sirikit National Convention Center, Bangkok , Thailand, *Photocatalytic Activity of Pt Nanoparticles for Visible Light-Driven Production of NADH.*
9. The 107th Korean Chemical Society (KCS) National Meeting, **2011**, International convention center (ICC) , Jeju, Korea, *High Solvent Accessibility of Oligonucleotides on Small-sized Au Nanoparticles.*
10. The 105th Korean Chemical Society (KCS) National Meeting, **2010**, Songdo Convensia, Incheon, Korea, *Label-free electrochemical detection of adenosine based on electron transfer from guanine bases in an adenosine-sensitive aptamer.*
11. Fluorescence **2009**, An International Conference of Fluorescence in Biology, March 16-19, **2009**, Tata Institute of Fundamental Research (TIFR), Mumbai, India. *Photophysical Properties of Amphiphilic Ruthenium(II)-Complexes in Microheterogeneous Media*
12. National Seminar in Recent Trends in Chemistry, **2009**, Jayaraj Annapackiam College for Women (Autonomous), Periyakulam. *Photophysical properties and kinetics of curcumin with p-sulfanatocalix[4]arene.*

13. Trombay Symposium on Radiation and Photochemistry (TSRP- 2008), Jan 07-11, **2008**, YASHADA, Pune. Modern Trends in Inorganic Chemistry (MTIC-XII), Dec. 6-8, **2007**, IIT, Madras. *Photoinduced Electron Transfer Reaction of Tris(4,4'-dicarboxyl-2,2'-bipyridine)ruthenium(II) Ion with Organic Sulfides.*
14. An International Conference on Frontiers of Radiation and Photochemistry, PHOTORADCHEM -2007, Feb 8-11, **2007**, Mahatma Gandhi University, Kottayam, Kerala *Photophysics of Ruthenium(II) Complexes Carrying Surfactant Ligand.*
15. National Symposium on Radiation and Photochemistry, NSRP-**2007**, Jan 29-31, **2007**, NCUIFP, University of Madras, Chennai *Photophysics of Ruthenium(II) Complexes of the Ligand 2,2'-bipyridine Carrying Amino Acid Moiety and Intramolecular Electron Transfer From Thioether to Photogenerated Ru(III)*
16. National Seminar in Recent Trends in Chemistry, Jayaraj Annapackiam College for Women (Autonomous), Periyakulam, 9,10 Aug, 2007 "*Tuning the photophysics of ruthenium(II) complexes with the change of heteroatom in the ligand*"
17. Trombay Symposium on Radiation and Photochemistry (TSRP- 2006), Jan 05-9, **2006**, Bhabha Atomic Research Center, Mumbai.
18. Modern Trends in Chemistry, MTC-6, Mar, 17, 8-**2006**, Vivekananda College, Tiruvedakam West, Madurai
19. National Workshop on Green Chemistry, July 15-16, **2005**, School of Chemistry, Madurai Kamaraj University, Madurai
20. National Symposium on Radiation and Photochemistry, NSRP-2005, Karnatak University, Dharwad.
21. Second Regional CRSI Symposium in Chemistry, Bharathidasan University Tiruchirappalli, Jan 7-8, **2005**
22. Modern Trends in Chemistry, MTC-5, Sep, 29,30-2004, Vivekananda College, Tiruvedakam West, Madurai
23. National Symposium on Recent Developments in Organometallic Chemistry, (REDOM-2003), Manonmaniam Sundaranar University, Tirunelveli, March 27-28, **2003**

8. Publications&Books Authored

2017

17. New cyclopentadienyl rhodium catalysts for electrochemical hydrogen production. Jinheung Kim, **Eswaran Rajkumar**, Soojin Kim, Yu Mi Park, Youngmee Kim, Hye Jin Lee , *Catalysis Today*, **2017**, in press. 10.1016/j.cattod.2017.05.062

2016

16. Micellar effect on the photophysics of heteroleptic ruthenium(II)–phenanthrolinedisulfonato complexes S. Ramanathan, A. Ramdass, **E. Rajkumar**, S. Rajagopal *Luminescence*, 31: 30–37

2015

15. Photoinduced Electron Transfer Reactions of Ruthenium(II) Phenanthroline Complexes with Dimethylaniline in Aqueous and Micellar Media S. Ramanathan, A.Ramdass, **E. Rajkumar**, S. Rajagopal *Journal of Fluorescence*, **2015**, 25, 147-157.

2014

14. Photophysical Properties of Amphiphilic Ruthenium(II)-Complexes in Micelles **E. Rajkumar**, P Muthu Mareeswaran, S. Rajagopal *Photochemical Photobiological Sciences*, **2014**, 13, 1261- 1269.
13. Photoinduced electron transfer reactions of ruthenium(II)-complexes containing amino acid with quinones **E. Rajkumar**, K. Swarnalatha, P Muthu Mareeswaran, S. Rajagopal *Journal of Fluorescence*, **2014**, 24, 875- 884.
12. Antimicrobial activity of binary and ternary composites of chitosan amended with nylon 6 and montmorillonite clay N. Prakash, **E. Rajkumar**, P. Sudha, N. Udaya prakash *International Journal of Pharmacy and Pharmaceutical Sciences*, **2014**, 6, 118-120.

2013

11. Efficient Electrochemical Regeneration of NADH Using a Rh catalyst on Functionalized ITO Electrodes S. Kim, G. Y. Lee, J. Lee, **E. Rajkumar**, J. –O. Baeg, J. Kim, *Electrochimica Acta*, **2013**, 96, 141 - 146.
10. Electron transfer reactions of ruthenium(II)–bipyridine complexes carrying tyrosine moiety with quinones P. Muthu Mareeswaran, **E. Rajkumar**, V. Sathish, S. Rajagopal *Luminescence*, **2013**, 29, 754-761.

9. Evaluation of antimicrobial property of few co-polyesters ,Tamilarasan K, Nanthini R, Prakash N, **Rajkumar E**, Renganathan N, Udaya Prakash N. *International Journal of Research in Pharmaceutical Science*, **2013**, 4, 1-4.

2011

8. Proton Coupled Electron Transfer Reaction of Phenols with Excited State Ruthenium(II) - Polypyridyl Complexes K. Swarnalatha, E. Rajkumar, S. Rajagopal, R. Ramaraj, I. Sadhiya Banu, P. Ramamurthy *J. Phys. Org. Chem.*, **2011**, 24, 14-21.
7. Photoluminescence Electron-Transfer Quenching of Rhenium(I) Complexes with Organic Sulfides M. Rajkumar, J. Bhuvaneshwari, M. Velayudham, E. Rajkumar, S. Rajagopal *J. Fluoresc.*, 2011, 21, 1729-1737.
6. Emission Detection of Mercuric Ions in Aqueous Media Based-on Dehybridization of DNA Duplexes B-N. Oh, Q. Wu, M-S. Cha, H-K. Kang, J-A. Kim, K-Y. Kim, E. Rajkumar, J. Kim *Bull. Korean Chem. Soc.* 2011, 32, 9, 3223-3228.

2009

5. Photophysics of ruthenium(II) complexes carrying methionine in the ligand 2,2'-bipyridine and intramolecular electron transfer from methionine to photogenerated Ru(III) E. Rajkumar, S. Rajagopal. *Inorg. Chim. Acta.*, 2009, 362, 5, 1629-1636.

2008

4. Photoinduced Electron Transfer Reaction of Tris(4,4'-dicarboxyl-2,2'-bipyridine) ruthenium(II) Ion With Organic Sulfides E. Rajkumar, S. Rajagopal. *Photochem. Photobiol. Sci.*, 2008, 7, 1407-1414.

2006

3. Micellar catalysis on the electron transfer reactions of iron(III)-polypyridyl complexes with organic sulfides—importance of hydrophobic interactions S. Balakumar, P. Thanasekaran, E. Rajkumar, K. J. Adaikalasamy, S. Rajagopal, R. Ramaraj, T. Rajendran, B. Manimaran and K.-L. Lu *Organic Biomolecular Chemistry* 2006, 4, 352-358.

2005

2. Photoinduced electron transfer reactions of ruthenium(II) complexes containing 2,2'-bipyridine-4,4'-dicarboxylic acid with phenols Steric and charge effects K. Swarnalatha, E. Rajkumar, S. Rajagopal, R. Ramaraj, Y-L Lu, K-L Lu, P. Ramamurthy *Journal of Photochemistry and Photobiology A: Chemistry* 2005, 171, 83-90.

1. Micellar effect on the electron transfer reaction of chromium(V) ion with organic sulphides J. R. Bosco Bharathy, T. K. Ganesan, E. Rajkumar, S. Rajagopal, B. Manimaran, T. Rajendran and K-L. Lu Tetrahedron 2005, 61, 4679-4687.

Book Chapter:

A biomimetic model of the electron transfer in photosystem II – Photoinduced electron transfer reactions of ruthenium(II)-polypyridine complexes with phenols –
E Rajkumar et al., Photo/electrochemistry and Photobiology in the Environment, Energy and Fuel, Research Signpost, ISBN 81-308-0122-1, **2006**, 169-206.

9. Resource Person in Conferences/Workshops etc.

Resource Generation Camp (RGC) for Chemistry Olympiad program at HBCSE (TIFR), Mumbai.

Guest lecture on “Functional Materials” at Valliammai Engineering College, SRM, Kattankulathur on 5th October 2016.

10. Recognition as Research Supervisor for M.Phil. and Ph.D.

M.Phil : 2 Completed

Ph.D : NIL

11. Other Distinctions

Research Experience:

Ewha Womans University, Post doctoral researcher – Center for Intelligent Nano -Bio Materials, Korea (March 2010- February 2013)

Research Projects Associated/Undertaken:

Project Title: “Ruthenium Based Dendrimers and their Patterns in Metalloprotein Sensing”

Duration : Three years

Funding Agency: The Department of Science and Technology – Science and Engineering Research Council – **Fast Track Scheme for Young Scientist**

Membership in Academic bodies/Board of studies/Editorial board (Journal):

1. Life Member in Indian Society for Radiation and Photochemical Sciences (ISRAPS), Bhabha Atomic Research Center (BARC), Mumbai, India.
2. Annual Member in Korean Chemical Society (KCS), Korea
3. Life Member in Association of Chemistry Teachers(ACT), TIFR, Mumbai.
4. Editorial Board Member in Applied Physics Research, Canada

12. Recent Passport size photograph

