

CURRICULUM VITAE

Dr. M. Sankar

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Academic Qualifications:

Degree	Name of the Institution	Period	Subject	Class
PhD	Department of Chemistry IIT Madras	2001-05	Porphyrin Chemistry	-
M Sc	School of Chemistry, Madurai Kamaraj University	1999-01	Chemistry	First
B Sc	University of Madras	1996-99	Chemistry Ancillary: Maths & Physics	First

Research Experience:

Period	Position	University	Research Topic
2020-	Professor	IIT Roorkee	Synthesis and Applications of Porphyrinoids
2015-20	Associate Professor	IIT Roorkee	-do-
2011-15	Assistant Professor	IIT Roorkee	-do-
2018	BASE Fellow	Univ. of North Texas, Denton, USA	' <i>Synthesis and Studies on Porphyrin Novel D-A Systems for Artificial Photosynthesis & Photovoltaic Applications</i> ' Host: Prof. Francis D'Souza
2009-11	JSPS Fellow	Univ. of Tsukuba, Tsukuba, Japan	' <i>Development of Novel Nanostructures Based on Nonplanar Porphyrins Toward Photo-functional Materials</i> ' Host: Prof. Takahiko Kojima
2008-09	CNRS Research Fellow	Univ. of Rennes1, Rennes, France	' <i>Synthesis of Fluorophore appended oligomeric porphyrin arrays</i> ' Mentor: Dr. O. Mongin & Prof. M. Blanchard-Desce
2007-08	Postdoctoral Fellow	Univ. of Bourgogne, Dijon, France	' <i>Synthesis of Tetraazamacrocycles Appended Porphyrins</i> ' Advisor: Dr. Alla Lumene and Prof. Roger Guilard
2005-07	Postdoctoral Researcher	Tel-Aviv Univ., Tel-Aviv, Israel	' <i>Synthesis and Self-assembly of Porphyrin Network Solids</i> ' Mentor: Prof. Israel Goldberg
2001-05	Senior Research Fellow & Junior Research Fellow	IIT Madras	' <i>Mixed Substituted Porphyrins: Syntheses, Structures and Their Properties</i> ' Supervisor: Prof. P. Bhyrappa

- ❖ Development of *Novel synthetic routes for the synthesis of mixed substituted porphyrins* via modified Pd coupling reactions and characterized them by the combined use of various spectroscopic techniques and single crystal XRD analysis.
- ❖ Carried out various functional group interconversions either at β -pyrrole and/or *meso*-phenyl positions of electron rich/deficient porphyrin macrocycles and studied their electrochemical redox behavior.
- ❖ Experience in syntheses of various porphyrinic synthons and assemble them into supramolecular network structures and study their intriguing physicochemical stereochemical properties.
- ❖ 'Synthesis of various asymmetrically β -substituted porphyrins and to utilize them for dye-sensitized solar cell (DSSC), nonlinear optics, ion sensing and PDT applications.

Academic Scholarships/Awards/Fellowships received:

- ❖ **Qualified in Graduate Aptitude Test in Engineering (GATE)** through national wide held on February 2001 organized by Indian Institute of Technology Kanpur (IITK).
- ❖ **Qualified in Council of Scientific and Industrial Research-National Eligibility Test (CSIR-NET)** for research program organized by CSIR Delhi held during July 2001.
- ❖ **Recipient of State Level Scholarship from Tamil Nadu State Government, India** from June 1993 to June 1996 for four year after qualifying Talent exam organized by State Educational Board.
- ❖ **Recipient of merit postdoctoral fellowship from Isreal-US binational scheme and French National Centre for Scientific Research (CNRS)** during the period from Dec'05 to Sept'07 and Nov'08 to June'09, respectively.
- ❖ **Recipient of merit postdoctoral fellowship from Bourgogne Regional Council** for foreign researchers from Oct'07 to Sept'08.
- ❖ **Recipient of Japan Society for Promotion of Sciences (JSPS) Fellowship** for foreign scholars during 2009-2011.
- ❖ **'MRSC' Conferred by Royal Society of Chemistry, Cambridge, UK** in 2017.
- ❖ Selected for **Outstanding Young Researcher Award** (with Institute Research Fellowship) from IIT Roorkee in 2017.
- ❖ **Selected for Bhaskara Advanced Solar Energy (BASE) Fellowship for the year 2018** to work at University of North Texas, Denton, TX, USA.
- ❖ **'FRSC' Conferred by Royal Society of Chemistry, Cambridge, UK** in 2020.

Research Interests:

- ❖ Synthesis of Novel Porphyrins and their analogues, Metalloporphyrin based catalysis, Supramolecular chemistry, Coordination chemistry, Molecular Recognition, Materials chemistry and Electrochemistry.

Extracurricular activities:

- ❖ Trained in National Cadet Corps (NCC) from July1997-May1999 and participated in Annual Training Camp.
- ❖ Involved in National Service Scheme (NSS) for two years from July1996-July1998 and attended yearly special camp.
- ❖ Trained in Social Service League (SSL) during July1996-May1998 and involved in Campus cleaning.
- ❖ Worked as Secretary for 'hostel administrative council' and also served as Counselor for 'guiding and counseling unit' at IIT-Madras from April 2004-March 2005.

PhD Guidance: 08 (Completed) and 10 (Ongoing)

- 1 **Ravi Kumar**, Synthesis and Applications of β - and *Meso*-Substituted Porphyrins, 2015.
- 2 **Pinky Yadav**, Synthesis and Applications of Functionalized Corroles and Porphyrins, 2017.
- 3 **Mandeep Kaur Chahal**, Design of Porphyrinoids and 1,8-Naphthyridine Hosts for Fluoride, Cyanide and Picric Acid Sensing, 2017.
- 4 **Nitika Grover**, β -Substituted 'Push-Pull' Porphyrinoids: Synthesis, Photophysical and Electrochemical Redox Properties, 2017.
- 5 **Kamal Prakash**, Functionalized Porphyrins and Their Application in DSSC, Electrocatalysis and Anion Sensing, 2018.
- 6 **Nivedita Chaudhri**, β -Functionalized Chlorins and Porphyrins: Synthesis, Spectral and Redox Properties, 2018.
- 7 **Tawseef Ahmad Dar**, Diverse Functionalized Porphyrins for Catalytic, EET and Sensor Applications, 2018
- 8 **Pinky Rathi**, Synthesis of *Meso*/ β -Functionalized Porphyrins and Their Application in Anion Sensing, Nonlinear Optics (NLO) and Complexation with Fullerenes, 2019

M. Tech and M. Sc Project Guidance: 23 (Completed)

M. Tech Thesis: 11 (Completed) + 01 (Ongoing)

- 1 **Richa Yadav**, Synthesis and Catalytic Applications of Metalloporphyrins, 2012.
- 2 **Amit Kumar**, Synthesis of Novel Porphyrin Derivatives *via* Pd Catalyzed Coupling Reactions, 2013.
- 3 **Amit Kumar**, Synthesis of Novel A₃B Porphyrins for DSSC Applications, 2014.
- 4 **Amit Singh Rajput**, Doping Effect in Multiferroic YMnO₃, 2014.
- 5 **Bijjam Madhusudhan**, Porphyrin Structures for Material and Biomedical Applications, 2015.
- 6 **Amit Saxena**, Detection of Toxic Ions by Electron Deficient Metalloporphyrinoids, 2016.
- 7 **Upasana Sah**, Synthesis and Applications of β -Functionalized Porphyrinoids and Porphyrin Appended CNTs, 2017.
- 8 **Gaurav**, Synthesis of β -Functionalized Metalloporphyrins and Their Applications, 2018.
- 9 **Ankit Sharma**, Synthesis and NLO Studies of Arylamino porphyrins, 2019.
- 10 **R Abinaya**, Porphyrinoid Incorporated Biocompatible Nanogels for Medicinal Applications, 2020
- 11 **Ritin Kamboj**, Synthesis and Characterization of Functionalized Porphyrins and Biodegradable Polymers, 2020

M. Sc Dissertation: 13 (Completed)

- 12 **Rupa Mukherjee**, Synthesis and Functionalization of A₃ Corroles and Their Cu(III) Complexes, 2012.
- 13 **Bhupinder**, Synthesis and Studies on Various Cyanoporphyrins, 2013.
- 14 **Anagh Mukherjee**, Synthesis and Studies on Boronic Esters Appended Porphyrins, 2014.
- 15 **Mohina Gidwani**, Synthesis and Studies on β -substituted Porphyrins, 2015.
- 16 **Kumari Anshul**, Syntheses and Studies of Asymmetrically β -Substituted Porphyrins Through Michael Addition Reactions, 2016.
- 17 **Simran Preet**, Synthesis, Spectral and Electrochemical Studies of β /*meso*-Substituted Corroles, 2016.
- 18 **Shweta Manchanda**, Synthesis of β -Functionalized “Push-Pull” Zn(II) Porphyrins for DSSC Applications, 2017.
- 19 **Mandeep**, Synthesis of π -Extended Porphyrins and Their Properties, 2018.

- 20 **Ekta**, β -Functionalized ‘Push-Pull’ Porphyrins: Synthesis, Photophysical and Electrochemical Redox Properties, 2019.
- 21 **Aayushi Gupta**, Synthesis and Spectral Studies of Extended π -Conjugated Benzoporphyrins, 2019.
- 22 **Divyansh Dhiman**, β -Disubstituted Silver Corroles: Regioselective Synthesis, Structural, Spectral and Electrochemical Redox Properties, 2020.
- 23 **Piyush Gupta**, *Meso*-Functionalized Phenothiazinylporphyrins: Synthesis, Photophysical and Electrochemical Properties, 2020.
- 24 **Tavleen Manchanda**, Development of Carboxy Dodecaphenylporphyrin based Nanochannels as Hosts for Various Electron Donors, 2020.

List of Publications

Total number of Publications in the International Journals: 95

1.	T. Anand and M. Sankar* , “A dual colorimetric chemosensor for Hg(II) and cyanide ions in aqueous media based on a nitrobenzoxadiazole (NBD)-antipyrine conjugate with INHIBIT logic gate behaviour” <i>Anal. Methods</i> 2020, DOI: 10.1039/D0AY00913J (<i>Highlighted in the cover of the journal</i>).
2.	M. Sankar,* P. Rathi, A. Ganesan, S. Seetharaman, P. A. Karr and F. D’Souza, “A Persubstituted Triphenylamine Bearing Dendritic Zinc Porphyrin to Host Endohedral Fullerene, Sc ₃ N@C ₈₀ : Formation and Excited State Charge Transfer” <i>J. Phys. Chem. B</i> 2020, 124, 5723-729.
3.	N. Grover and M. Sankar* “N-Confused Porphyrin - A Unique “Turn on” and “Turn off” Anion Sensor” <i>Chem. Asian J.</i> 2020, 15, 2192-197.
4.	P. Rathi, Ekta, S. Kumar, D. Banerjee, S. V. Rao and M. Sankar,* “Unsymmetrical β -Functionalized ‘Push-Pull’ Porphyrins: Synthesis, Photophysical, Electrochemical and Nonlinear Optical Properties”, <i>Dalton Trans.</i> 2020, 49, 3198-3208.
5.	N. Chaudhri, L. Cong, A. S. Bulbul, N. Grover, W. R. Osterloh, Y. Fang, M. Sankar* and K. M. Kadish, “Structural, Photophysical, and Electrochemical Properties of Doubly Fused Porphyrins and Related Fused Chlorins”, <i>Inorg. Chem.</i> 2020, 59, 1481-1495.
6.	Y. Fang, I. Yadav, W. R. Osterloh, N. Chaudhri, M. Sankar* and K. M. Kadish, “Electrochemistry of Tri-substituted Porphyrins with β -Appended Ethyl Acetoacetate and Acetylacetone in Neutral and Basic Nonaqueous Solvents”, <i>ChemElectroChem</i> 2020, 7, 1723-1732.
7.	T. A. Dar, A. S. Bulbul, M. Sankar* and K. M. Kadish, “ <i>Meso</i> -Tetrapyrenylporphyrins: Synthesis, Structural, Spectral, and Electrochemical Properties and Förster Energy Transfer (FRET) Studies” <i>J. Porphyrins Phthalocyanines</i> 2020, 24, 985-992 (<i>Invited Article on the occasion of 60th Birthday of Prof. Roberto Paolesse</i>).

8.	M. Yadav, P. K. Sonkar, K. Prakash, V. Ganesan, M. Sankar ,* D. K. Yadav and R. Gupta “Insight into efficient bifunctional catalysis: Oxygen reduction and oxygen evolution reactions using MWCNTs based composites with 5,10,15,20-tetrakis(3',5'-dimethoxyphenyl)porphyrinato cobalt(II) and 5,10,15,20-tetrakis(3',5'-dihydroxyphenyl)porphyrinatocobalt(II)” <i>Int. J. Hydrog. Energy</i> 2020 , <i>45</i> , 9710-9722.
9.	N. Grover, N. Chaudhri and M. Sankar ,* “ β -Functionalized Dibenzoporphyrins with Mixed Substituents Pattern: Facile Synthesis, Structural, Spectral and Electrochemical Redox Properties”, <i>Inorg. Chem.</i> 2019 , <i>58</i> , 2514-2522.
10.	P. Rathi, R. Butcher and M. Sankar ,* “Unsymmetrical Nonplanar ‘Push-Pull’ β -Octa-substituted Porphyrins: Facile Synthesis, Structural, Photophysical and Electrochemical Redox Properties”, <i>Dalton Trans.</i> 2019 , <i>48</i> , 15002-15011 (<i>Highlighted in the back cover of the journal</i>).
11.	L. Cong [§] , M. K. Chahal [§] , R. Osterloh, M. Sankar * and K. M. Kadish, “Synthesis, Electrochemistry, and Reversible Interconversion among Perhalogenated Hydroxyphenyl Ni(II) Porphyrins, Porphodimethenes, and Porpho-5,15-bis-paraquinone Methide”, <i>Inorg. Chem.</i> 2019 , <i>58</i> , 14361-14376 (<i>§these authors contributed equally to this work</i>).
12.	T. A. Dar, B. Uprety, M. Sankar * and M. R. Maurya, “Robust and Electron Deficient Oxidovanadium(IV) Porphyrin Catalyst for Selective Epoxidation and Oxidative Bromination Reactions in Aqueous Media”, <i>Green Chem.</i> , 2019 , <i>21</i> , 1757-1768.
13.	K. Prakash, A. Z. Alsaleh, Neeraj, P. Rathi, A. Sharma, M. Sankar * and F. D’Souza, “Synthesis, Spectral, Electrochemical and Photovoltaic Studies of A ₃ B Porphyrinic Dyes having Peripheral Donors”, <i>ChemPhysChem</i> 2019 , <i>20</i> , 2627-2634 (<i>An invited article for the Special Issue on Solar Cells</i>).
14.	K. Prakash, M. Sankar ,* S. Seetharaman, and F. D’Souza, “Synthesis, Electrochemical and Photochemical Studies on π -Extended Mono- β -Functionalized Porphyrin Dyads”, <i>ChemPhotoChem.</i> 2019 , <i>3</i> , 151-165.
15.	N. Grover, N. Chaudhri and M. Sankar ,* “ β -Substituted Donor-Acceptor Porphyrins: Synthesis, Energy Transfer and Electrochemical Redox Properties”, <i>Dyes Pigm.</i> 2019 , <i>161</i> , 104-112.
16.	K. Prakash, V. Sudhakar, K. Krishnamoorthy and M. Sankar ,* “ <i>Trans</i> -A ₂ B ₂ Zn ^{II} -Porphyrin Dyes with Various Donor Groups and their Co-sensitization for Highly Efficient Dye Sensitized Solar Cells”, <i>Dyes Pigm.</i> 2019 , <i>160</i> , 386-394.
17.	M. Sankar and P. Bhyrappa, “Effect of Solvent on the Electronic Absorption Spectral Properties of Ni(II) and Cu(II)-complexes of Some Mixed β -Octasubstituted- <i>meso</i> -tetraphenylporphyrins”, <i>Chem. Phys. Lett.</i> 2019 , <i>730</i> , 643-648.

18.	N. Chaudhri, L. Cong, N. Grover, W. Shan, K. Ansul, M. Sankar* and K. M. Kadish, "Synthesis and Electrochemical Characterization of Acetylacetonate (aac) and Ethyl Acetate (EA) Appended β -Trisubstituted Push-Pull Porphyrins: Formation of Electronically Communicating Porphyrin Dimers", <i>Inorg. Chem.</i> 2018 , <i>57</i> , 13213-13224.
19.	R. Kumar, V. Sudhakar, K. Prakash, K. Krishnamoorthy and M. Sankar,* "Tuning the Photovoltaic Performance of DSSCs by Appending Various Donor Groups on <i>Trans</i> -Dimesityl Porphyrin Backbone", <i>ACS Appl. Energy Mater.</i> 2018 , <i>1</i> , 2793-2801 (<i>One of the Most Read articles during May-July 2018</i>).
20.	N. Chaudhri, N. Grover and M. Sankar,* "Nickel Induced Skeletal Rearrangement of Free Base <i>trans</i> -Chlorins into Monofused Ni ^{II} -Porphyrins: Synthesis, Structural, Spectral and Electrochemical Redox Properties", <i>Inorg. Chem.</i> 2018 , <i>57</i> , 11349-11360.
21.	N. Chaudhri, N. Grover and M. Sankar,* "Selective Conversion of Planar <i>trans</i> -Chlorins into Highly Twisted Doubly Fused-Porphyrins or -Chlorins via Oxidative Fusion", <i>Inorg. Chem.</i> 2018 , <i>57</i> , 6658-6668.
22.	X. Ke, R. Kumar, M. Sankar* and K. M. Kadish, "Electrochemistry and Spectroelectrochemistry of Cobalt Porphyrins with π -Extending and/or Highly Electron-Withdrawing Pyrrole Substituents. <i>In Situ</i> Electrogeneration of σ -Bonded Complexes", <i>Inorg. Chem.</i> 2018 , <i>57</i> , 1490-1503.
23.	U. Sah, K. Sharma, N. Chaudhri, M. Sankar* and P. Gopinath, "Antimicrobial Photodynamic Therapy: Single-walled Carbon Nanotube (SWCNT)-Porphyrin Conjugate for Visible Light Mediated Inactivation of <i>Staphylococcus aureus</i> " <i>Colloids and Surfaces B: Biointerfaces</i> 2018 , <i>162</i> , 108-117.
24.	N. Chaudhri, R. J. Butcher and M. Sankar,* "Synthesis, Structural, Photophysical, Electrochemical Redox and Axial Ligation Properties of Highly Electron Deficient Perchlorometalporphyrins and Selective CN ⁻ Sensing by Co(II) Complexes", <i>New J. Chem.</i> 2018 , <i>42</i> , 8190-8199 (<i>Invited article for the themed issue on Equilibrium Solution Coordination Chemistry</i>).
25.	M. K. Chahal, T. A. Dar and M. Sankar,* "Facile Synthesis of Functionalized Urea, Imidazolium Salt, Azide and Triazole from 2-Amino-5,7-Dimethyl-1,8-Naphthyridine Scaffold and their Utilization in Fluoride ion Sensing", <i>New J. Chem.</i> 2018 , <i>42</i> , 10059 - 10066.
26.	N. Grover, R. Kumar, N. Chaudhri, R. Butcher and M. Sankar,* " β -Heptasubstituted Porphyrins: Synthesis, Structural, Spectral and Electrochemical Redox Properties", <i>Eur. J. Inorg. Chem.</i> 2018 , 3338-3343.

27.	T. A. Dar, Mandeep and M. Sankar,* “Synthesis, Spectral and Electrochemical Redox Properties of N-Methyl Fused Nickel(II) Porphyrin” <i>J. Porphyrins Phthalocyanines</i> 2018 , 22, 1106-1110.
28.	P. Bhyrappa and M. Sankar , “Effect of solvent on the electronic absorption spectral properties of some mixed β -octasubstituted Zn(II)-tetraphenylporphyrins”, <i>Spectrochim. Acta A</i> , 2018 , 189, 80-85.
29.	P. Bhyrappa and M. Sankar , “Highly Nonplanar Macrocyclic Ring Conformation in the Crystal Structures of Ni(II) And Cu(II) Octaphenylporphyrins”, <i>J. Struct. Chem.</i> 2018 , 59, 415-424.
30.	P. K. Sonkar, M. Yadav, K. Prakash, V. Ganesan, M. Sankar , D. K. Yadav and R. Gupta, “Electrochemical sensing of rifampicin in pharmaceutical samples using meso-tetrakis(4- hydroxyphenyl)porphyrinatocobalt(II) anchored carbon nanotubes”, <i>J. Appl. Electrochem.</i> 2018 , 48, 937-946.
31.	N. Chaudhri, N. Grover and M. Sankar,* “Versatile Synthetic Route for β -Functionalized Chlorins and Porphyrins by Varying the Size of Michael Donors: Syntheses, Photophysical & Electrochemical Redox Properties”, <i>Inorg. Chem.</i> 2017 , 56, 11532-11542 (<i>Highlighted at ACS Inorg. Chem. journal site as HOT paper</i>).
32.	M. K. Chahal & M. Sankar,* “ β -Dicyanovinyl Substituted Porphyrinogen: Synthesis, Reversible Sensor for Picric Acid among Explosives and Unique Sensor for Cyanide and Fluoride ions by Switching between Various Porphyrinoid States”, <i>Dalton Trans.</i> 2017 , 46, 11669-11678 (<i>Highlighted by RSTV and leading Newspapers in India</i>).
33.	P. Rathi, M. K. Chahal and M. Sankar,* “Highly Electron Deficient Tetrabenzquinone Appended Ni(II) and Cu(II) Porphyrins: Spectral, Solvatochromism, Electrochemical Redox and Tuneable F ⁻ and CN ⁻ Sensing Properties”, <i>New J. Chem.</i> 2017 , 41, 11962- 11968.
34.	X. Ke, P. Yadav, L. Cong, R. Kumar, M. Sankar* and K. M. Kadish, “Facile and Reversible Electrogeneration of Porphyrin Trianions and Tetraanions in Nonaqueous Media from Electron Deficient β -Substituted Porphyrins”, <i>Inorg. Chem.</i> 2017 , 56, 8527- 8537.
35.	P. Yadav, M. Sankar,* X. Ke, L. Cong and K. M. Kadish, “Synthesis of π -Extended PhenylethynylCorroles and Their Intriguing Electrochemical Redox Properties”, <i>Dalton Trans.</i> 2017 , 46, 10014-10022.
36.	P. Yadav, R. Kumar, A. Kumar and M. Sankar,* “Mixed Tri β -Substituted Push-Pull Porphyrins: Synthesis, Photophysical, Electrochemical and Theoretical studies”, <i>Eur. J. Inorg. Chem.</i> 2017 , 3269-3274.

37.	M. K. Chahal, M. Sankar* and R. J. Butcher, "An Insight into Communication between β -olefin/phenyl olefin-mediated Acceptors and Porphyrin π -system: Way to establish Porphyrin based Chemodosimeters and Chemosensors", <i>Phys. Chem. Chem. Phys.</i> 2017 , 19, 4530-4540.
38.	K. Prakash, S. Manchanda, V. Sudhakar, N. Sharma, M. Sankar* and K. Krishnamoorthy, "Facile Synthesis of β -Functionalized 'Push-Pull' Zn(II) Porphyrin for DSSC Applications", <i>Dyes Pigm.</i> 2017 , 147, 56-66.
39.	P. Yadav, P. Rathi and M. Sankar,* "Facile Generation of A2B Corrole Radical and Its Spectroscopic Properties", <i>ACS Omega</i> 2017 , 2, 959-965.
40.	P. Yadav, M. S. S. Bharathi, S. Bhattacharya, M. Sankar* and S. V. Rao, "Synthesis and Femtosecond Third Order Nonlinear Optical Properties of Push-Pull <i>Trans</i> -A2B-Corroles", <i>Dyes Pigm.</i> 2017 , 143, 324-330.
41.	P. Yadav and M. Sankar,* "Spectroscopic and theoretical studies of anionic corroles derived from phosphoryl and carbomethoxyphenyl substituted corroles", <i>Chem. Phys. Lett.</i> 2017 , 667, 107-113.
42.	T. A. Dar and M. Sankar,* "Facile Synthesis of Nitrovanillin Appended Porphyrin and Its Utilization as Potent, Recyclable, Naked-Eye CN^- and F^- Ion Sensor", <i>ChemistrySelect</i> 2017 , 2, 6778-6783.
43.	N. Chaudhri, N. Sawhney, B. Madhusudhan, A. Raghav, M. Sankar* and S. Satapati, "Effect of Functional Groups on Sensitization of Dye Sensitized Solar Cells using Free Base Porphyrins", <i>J. Porphyrins Phthalocyanines</i> 2017 , 21, 222-230.
44.	P. Sonkar, K. Prakash, M. Yadav, V. Ganesan, M. Sankar , R. Gupta and D. K. Yadav, "Co(II)-Porphyrins Decorated Carbon Nanotubes as Catalysts for Oxygen Reduction Reactions: An Approach for Fuel Cell Improvement", <i>J. Mater. Chem. A</i> 2017 , 5, 6263- 6276.
45.	N. Grover, N. Chaudhri and M. Sankar,* "Facile Conversion of Ni(II) Cyclopropylchlorins into Novel β -Substituted Porphyrin through Acid-Catalyzed Ring-Opening Reaction", <i>Inorg. Chem.</i> 2017 , 56, 424-437.
46.	K. Prakash and M. Sankar,* "Borylated Porphyrin and its Metal Complexes: Synthesis, Electrochemistry and Deprotection-Protection Strategy for Anion Sensing", <i>Sensor and Actuators: B Chemical</i> 2017 , 240, 709-717.
47.	P. Yadav and M. Sankar,* "Facile synthesis, photophysical and electrochemical redox properties of octa- and tetra-carboxamidophenylporphyrins and the first example of amido- imidol tautomerism in porphyrins", <i>Dyes Pigm.</i> 2017 , 139, 351-357.

48.	M. K. Chahal and M. Sankar,* “Switching between Porphyrin, Porphodimethene and Porphyrinogen using Cyanide and Fluoride ions mimicking Volatile Molecular Memory and 'NOR' Logic Gate”, <i>Dalton Trans.</i> 2016 , <i>45</i> , 16404-16412.
49.	N. Grover, M. Sankar,* Y. Song and K. M. Kadish, “Asymmetrically Crowded ‘Push-Pull’ Octaphenylporphyrins with Modulated Frontier Orbitals: Syntheses, Photophysical and Electrochemical Redox Properties”, <i>Inorg. Chem.</i> 2016 , <i>55</i> , 584-597 (Highlighted as HOT PAPER and one of the most read article during Jan 2016).
50.	R. Kumar, M. Sankar,* V. Sudhakar and K. Krishnamoorthy, “Synthesis and Characterization of Simple Cost-effective <i>Trans</i> -A2BC-porphyrins with Various Donor Groups for Dye-Sensitized Solar Cells”, <i>New. J. Chem.</i> 2016 , <i>40</i> , 5704-5713 (an Invited article for the themed issue on Nitrogen Ligands).
51.	R. Kumar, A. Saxena and M. Sankar,* “Mixed β -Bromo/Cyano Tetrasubstituted- <i>meso</i> -Tetraphenylporphyrin Cu(II) Complexes: Synthesis and Electrochemical studies”, <i>J. Porphyrins Phthalocyanines</i> 2016 , <i>20</i> , 1420-1425.
52.	T. A. Dar, M. K. Chahal, A. Kumar and M. Sankar,* “Synthesis, Electrochemical and Complexation Studies of Zn(II) Aryloxyporphyrins with Fullerene C ₆₀ ”, <i>J. Porphyrins Phthalocyanines</i> 2016 , <i>20</i> , 744-751.
53.	M. K. Chahal and M. Sankar,* “Porphyrin Chemodosimeters: Synthesis, Electrochemical Redox Properties and Selective 'Naked-eye' Detection of Cyanide Ions”, <i>RSC Adv.</i> 2015 , <i>5</i> , 99028-36.
54.	M. K. Chahal and M. Sankar,* “1,8-Naphthyridine-based Fluorescence Receptor for Picric Acid Detection in Aqueous Media”, <i>Anal. Methods</i> 2015 , <i>7</i> , 10272-10279.
55.	R. Kumar, N. Chaudhary, M. Sankar* and M. R. Maurya, “Electron Deficient Nonplanar β - Octachlorovanadylporphyrin as Highly Efficient and Selective Epoxidation Catalyst for Olefins”, <i>Dalton Trans.</i> 2015 , <i>44</i> , 17720-17729.
56.	R. Kumar, P. Yadav, P. Rathi and M. Sankar,* “Photophysical, electrochemical redox, solvatochromism and anion sensing properties of β -tetra- and -octaphenylethynyl substituted <i>meso</i> -tetraphenylporphyrins”, <i>RSC Adv.</i> 2015 , <i>5</i> , 82237-82246.
57.	K. Prakash, R. Kumar and M. Sankar,* “Mono- and Tri- β -Substituted Unsymmetrical Porphyrins: Synthesis, Structural, Spectral, and Electrochemical Properties”, <i>RSC Adv.</i> 2015 , <i>5</i> , 66824-66832.
58.	N. Chaudhri, N. Grover and M. Sankar,* “Asymmetrically β -Substituted Porphyrins and Chlorins: Synthesis, Spectroscopic and Electrochemical Redox Properties”, <i>ECS Trans.</i> 2015 , <i>66</i> , 11-20 (Invited Article).

59.	R. Kumar, N. Chaudhri and M. Sankar ,* “Naked eye Selective Detection of CN ⁻ ions by Electron Deficient Ni(II) Porphyrins and their Reversibility Studies”, <i>Dalton Trans.</i> 2015 , 44, 9149-9157 (One of the " Most accessed articles " during April 2015).
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61.	N. Grover, P. Rathi and M. Sankar ,* “Spectral Investigations of <i>Meso</i> -tetraalkyl-porphyrin- C60 host-guest complexes”, <i>J. Porphyrins Phthalocyanines</i> 2015 , 19, 997-1006 (Selected for cover page illustration).
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64.	R. Kumar and M. Sankar ,* “Synthesis, Spectral, and Electrochemical Studies of Electronically Tunable β -Substituted Porphyrins with Mixed Substituent Pattern”, <i>Inorg. Chem.</i> 2014 , 53, 12706-12719.
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68.	T. Ishizuka, M. Sankar and T. Kojima, “Control of the spatial arrangements of supramolecular networks based on saddle-distorted porphyrins by intermolecular hydrogen bonding”, <i>Dalton Trans.</i> 2013 , 42, 16073-16079.
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81.	M. Sankar , P. Bhyrappa, B. Varghese, K. K. Praneeth, and G. Vaijayanthimala, “ <i>Meso</i> -tetrakis(3',5'-disubstitutedphenyl)porphyrins: Structural, electrochemical redox and axial ligation properties”, <i>J. Porphyrins Phthalocyanines</i> 2005 , 9, 413-422.
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82.	Structural Communications on Symmetrical & Unsymmetrical Porphyrinic Networks:
83.	M. Sankar , S. Lipstman and I. Goldberg, “Borylated porphyrins: 5,10,15,20-tetrakis(5,5-dimethyl-1,3,2-dioxaborinan-2-yl)porphyrin nitrobenzene disolvate”, <i>Acta Crystallogr.</i> 2008 , C64, o117-o119 (<i>Selected for Cover Page Illustration</i>).
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92.	S. Lipstman, M. Sankar and I. Goldberg, "Tetrakis(3'-chlorophenyl)porphyrinato) zinc(II)", <i>Acta Crystallogr.</i> 2006 , <i>E62</i> , m782-m784.
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94.	M. Sankar and I. Goldberg, "On C-H...O interactions in 3,5-dinitrobenzaldehyde", <i>Acta Crystallogr.</i> 2006 , <i>E62</i> , o5842-o5844.
95.	M. Sankar and I. Goldberg, "Supramolecular assembly of diethyl 5-carboxybenzene 1,3-dicarboxylate", <i>Acta Crystallogr.</i> 2006 , <i>E62</i> , o5878-o5880.

Details of Research Publications in Conferences

Oral Presentation at the International and National Conferences: 25

1. **M. Sankar**, 'Synthesis of *Meso*- and β -Functionalized Porphyrinoids for Solar Cell, Catalysis, Nonlinear Optics (NLO) and Anion Sensing Applications' an invited delivered at First International Conference on Frontiers in Chemical Sciences (ICFCS-2020) held at Karunya University, Coimbatore, India during March 04-05, 2020.
2. **M. Sankar**, 'Recyclable Porphyrin-based Colorimetric Chemosensors for the Detection of Toxic Anions and Explosives' an invited lecture presented at 3rd Asian CHIP held at Guru Nanak Dev University, Amritsar, Punjab, India during November 06-09, 2019.
3. **M. Sankar**, 'Synthesis, Spectral and Electrochemical Redox Properties of Fused Porphyrins and Chlorins' an invited lecture presented at pre-Electrochemical Society (ECS) Symposium held at University of North Texas, Denton, TX, USA during May 24-25, 2019.
4. P. Rathi, **M. Sankar**,* S. Sairaman and F. D'Souza, 'Synthesis, Structural, Spectral and Electrochemical Redox Properties of N-Fused Porphyrins and Their Photoinduced Electron Transfer Studies with C₆₀ Derivatives' an invited lecture presented at 235th Electrochemical Society (ECS) Meeting held at Dallas, TX, USA during May 26-30, 2019.
5. **M. Sankar**, ' β -Functionalized Porphyrins, Chlorins and Corroles: Syntheses and Their Applications in Sensing, Catalysis and DSSCs' an invited talk presented at the Conference on Emerging Trends in Chemical Sciences - 2019 (ETCS-2019) held at University of Jammu, Jammu, India organized by Central University of Jammu during March 14-15, 2019.

6. **M. Sankar**, 'Synthesis and Applications of *Meso*- and β -Functionalized Porphyrinoids' an invited talk presented at the International Conference on Chemical Sciences and Nanomaterials - 2019 (ICCSN-2019) held at VIT University, Vellore, India during March 7-9, 2019.
7. P. Yadav, **M. Sankar**,* X. Ke, L. Cong and K. M. Kadish 'Synthesis, Spectral and Electrochemical Properties of Highly Reducible π -Extended Copper Corroles' oral presentation at the 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
8. N. Grover, N. Chaudhri and **M. Sankar*** 'Synthesis, Structural, Spectral and Intriguing Electrochemical Redox Properties of Difused-Chlorins and Porphyrins' oral presentation at the 233rd Electrochemical Society (ECS) Meeting held at Seattle, USA during May 13-17, 2018.
9. K. Prakash, R. Kumar and **M. Sankar*** 'DSSC and Electrocatalytic Applications of β - and *Meso*-Functionalized Porphyrins' invited oral presentation at the 5th Symposium on Biological Inorganic Chemistry (SABIC-5) held at Kolkata, India during January 7-11, 2017.
10. **M. Sankar** 'Naked-eye Detection of Toxic Anions and Picric Acid using Porphyrinoid Chemosensors and their Reusability Studies' invited lecture at the 6th National Symposium on Advances in Chemical Sciences held at Guru Nanak Dev University, Amritsar during March 6-7, 2017.
11. M. K. Chahal, N. Chaudhri, K. Prakash, R. Kumar, N. Grover, P. Yadav and **M. Sankar*** 'Naked-eye Detection of Toxic Anions using Porphyrinoid Chemosensors and their Reusability Studies' invited oral presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
12. R. Kumar, N. Chaudhri, M. Chahal and **M. Sankar**,* 'Ratiometric and Colorimetric 'Naked-eye' Selective Detection of CN⁻ ions by Porphyrinic Chemosensors and their Reversibility Studies' oral presentation at 6th EuCheMS Conference on Nitrogen Ligands, September 13-17, 2015 at Beaune, France.
13. **M. Sankar**,* 'Asymmetric β -Substitution: An Inventive Path to Modulate Photo-physical and Electrochemical Redox Properties'. Invited Talk delivered at 16th Symposium on Modern Trends in Inorganic Chemistry (MTIC-XVI) held at Jadavpur University, Kolkata, India during December 3-5, 2015.
14. N. Grover, N. Chaudhri, R. Kumar, M. K. Chahal and **M. Sankar*** 'Synthesis and Applications of Asymmetric β - and *Meso*-Substituted Porphyrins' an invited talk delivered at Frontiers in Inorganic and Organometallics held at IIT Indore, Simrol, India during April 14-15, 2016.
15. R. Kumar, N. Chaudhri, M. Chahal and **M. Sankar**,* 'Ratiometric and Colorimetric 'Naked-eye' Selective Detection of CN⁻ ions by Porphyrinic Chemosensors and their Reversibility Studies' oral presentation at 6th EuCheMS Conference on Nitrogen

Ligands, September 13-17, 2015 at Beaune, France.

16. R. Kumar, N. Grover, N. Chaudhri, K. Praksh and **M. Sankar*** 'Asymmetrically β -Substituted Porphyrins: Synthesis, Photophysical and Electrochemical Redox Properties' oral presentation at the 227th Electrochemical Society (ECS) meeting held at Chicago, USA during May 25-28, 2015.
17. T. Kojima, H. Kajii, **M. Sankar**, T. Ishizuka, H. Kotani, Y. Yamada and S. Fukuzumi 'Formation of Hydrogen-bonded Supramolecular Assemblies Based on Functionalised Saddle-distorted Porphyrins' oral presentation at the 227th Electrochemical Society (ECS) meeting held at Chicago, USA during May 25-28, 2015.
18. R. Kumar, N. Grover and **M. Sankar*** 'Synthesis and Studies on β -Substituted Novel Push-Pull Porphyrins' oral presentation at the 8th International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.
19. T. Kojima, **M. Sankar**, H. Kajii, and T. Ishizuka 'Supramolecular Assemblies of Saddle-Distorted Porphyrins with Intermolecular Hydrogen Bonding' oral presentation at the 8th International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.
20. **M. Sankar**, T. Ishizuka, T. Hasobe, K. Ohkubo, S. Fukuzumi and T. Kojima 'Supramolecular Assemblies Composed of Saddle-Distorted Porphyrins with Carboxyl Groups' was presented 221st Electrochemical Society (ECS) Meeting at Settle, Washington, USA during May 6-10, 2012.
21. I. Goldberg, **M. Sankar**, S. George and S. Lipstman 'Porphyrin assemblies: Rational design of coordination networks and supramolecular chirality' was presented as symposium lecture at the 5th International Conference on Porphyrins and Phthalocyanines (ICPP-5) at Moscow, Russia during July 6-11, 2008.
22. I. Goldberg, S. Lipstman, **M. Sankar**, and S. George 'Porphyrin-based framework coordination polymers tailored with lanthanide bridging reagents' an invited lecture presented at the 9th FIGIPAS Meeting in Inorganic Chemistry on "Supramolecular and Coordination Chemistry", July 4-7, 2007, Vienna, Austria.
23. I. Goldberg, S. Lipstman, **M. Sankar** and S. George 'Porphyrin-based framework coordination polymers tailored with lanthanide bridging reagents' an invited lecture presented at the 2007 Meeting of the American Crystallographic Association, July 21-26, 2007, Salt Lake City, Utah, USA.
24. I. Goldberg, S. Lipstman, **M. Sankar** and S. George 'Crystal engineering of porphyrin-based framework solids' an invited lecture presented at the 24th European Crystallographic Meeting, 22-27 August 2007, Marrakech, Morocco.
25. P. Bhyrappa, **M. Sankar**, and B. Varghese, 'Highly substituted porphyrins: Synthesis and their properties' an oral presentation at the 3rd International Conference on Porphyrins and Phthalocyanines (ICPP-3) held at New Orleans, Louisiana, USA during

July 11-17, 2004.

Poster Presentation at the International Conferences: 37

26. Inderpal and **M. Sankar*** 'Synthesis, Spectral and Electrochemical Redox Properties of EAA-Appended Porphyrins' poster presentation at 235th Electrochemical Society (ECS) Meeting held at Dallas, TX, USA during May 26-30, 2019.
27. R. K. Rohal and **M. Sankar*** 'Synthesis, Photophysical and Electrochemical Redox Properties of β -Octa and Hepta Substituted Chlorins and Porphyrins' poster presentation at 235th Electrochemical Society (ECS) Meeting held at Dallas, TX, USA during May 26-30, 2019.
28. N. Chaudhri, N. Grover and **M. Sankar*** 'Synthesis, Structural, Spectral and Electrochemical Redox Properties of Monofused Porphyrins Derived from *Trans*-Chlorins' poster presentation at 235th Electrochemical Society (ECS) Meeting held at Dallas, TX, USA during May 26-30, 2019.
29. S. Kumar and **M. Sankar*** 'Synthesis and Applications of Monobenzoporphyrins' poster presentation at 235th Electrochemical Society (ECS) Meeting held at Dallas, TX, USA during May 26-30, 2019.
30. N. Chaudhri, N. Grover and **M. Sankar*** ' β -Functionalized Fused Chlorins and Porphyrins: Facile Synthesis, Spectral and Electrochemical Redox Properties' poster presentation at the 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
31. K. Prakash, N. Chaudhri, R. Kumar and **M. Sankar*** 'Facile Synthesis of Donor- π -Acceptor *Trans*-A₂BC and A₂B₂ Zn(II) Porphyrin Dyes for DSSC Application' poster presentation at the 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
32. P. Rathi and **M. Sankar*** 'Asymmetric β -Substituted Porphyrins: Synthesis, Spectral and Electrochemical Redox properties' poster presentation at the 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
33. T. A. Dar and **M. Sankar*** 'Robust Electron Deficient Vanadyl Porphyrin Catalysts for Selective Epoxidation and Oxidative Bromination Reactions' poster presentation at the 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
34. L. Cong, Gaurav, N. Chaudhri, **M. Sankar*** and K. M. Kadish 'Intriguing Electrochemistry and Spectroscopic Properties of π -Extended Porphyrins' 10th International Conference on Porphyrins and Phthalocyanines (ICPP-10) held at Munich, Germany during July 1-6, 2018.
35. N. Grover, N. Chaudhri and **M. Sankar*** 'Versatile Synthetic Route for β -Functionalized Chlorins and Porphyrins by Varying the Size of Michael Donors:

- Syntheses, Photophysical and Electrochemical Redox Properties' poster presentation at the 233rd Electrochemical Society (ECS) meeting held at Seattle, USA during May 13-17, 2018.
36. K. Prakash and **M. Sankar*** 'Regioselective Synthesis, Structural, Photophysical and Electrochemical Properties' poster presentation at the 233rd Electrochemical Society (ECS) meeting held at Seattle, USA during May 13-17, 2018.
 37. R. Kumar and **M. Sankar*** ' β -Octachlorovanadylporphyrin as Highly Efficient and Selective Epoxidation Catalyst for Olefins' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 38. K. Prakash and **M. Sankar*** 'Boronic Ester Appended Porphyrins as Anion Sensors' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 39. N. Grover, Y. Song, **M. Sankar*** and K. M. Kadish 'Synthesis, Photophysical, Spectroelectro-chemical and Redox Properties of Push-pull Octaphenylporphyrins' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 40. N. Chaudhri, N. Grover, K. Anshul and **M. Sankar*** 'Facile Synthesis of Unsymmetrical β -Substituted Porphyrins via Nucleophilic Substitution Reactions' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 41. N. Chaudhri, R. Kumar, M. K. Chahal and **M. Sankar*** 'Colorimetric 'Naked-eye Selective Detection of CN⁻ ions by Porphyrin Chemosensors and Chemodosimeters' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 42. N. Grover and **M. Sankar*** 'N-Confused Porphyrin – A Unique turn on and turn off Anion sensor' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 43. L. Cong, X. Ke, Y. Fang, P. Yadav, **M. Sankar*** and K. M. Kadish 'Electrochemical and Spectroelectrochemical Studies of Phenylethynyl β -Substituted Corroles and Porphyrins' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 44. X. Ke, L. Cong, Y. Fang, R. Kumar, **M. Sankar*** and K. M. Kadish 'Electrogeneration and Electrochemistry of σ -bonded cobalt porphyrins with π -extended systems and/or electron withdrawing pyrrole substituents' poster presentation at the 9th International Conference on Porphyrins and Phthalocyanines (ICPP-9) held at Nanjing, China during July 3-8, 2016.
 45. R. Kumar, V. Sudhakar, K. Krishnamoorthy and **M. Sankar*** 'Cost-Effective *Trans*-A₂BC Porphyrin Zn(II) Complexes for Dye-Sensitized Solar Cell (DSSC) Applications'

poster presentation at the international conference on advanced materials for energy, environment and health (ICAM-2016) held at IIT Roorkee, Roorkee, India during March 4-7, 2016.

46. K. Prakash, P. Sonkar, V. Ganesan and **M. Sankar*** 'Effect of functionalized cobalt tetraphenylporphyrins non-covalently coupled with carbon nanotubes for oxygen reduction: An approach for fuel cell improvement' poster presentation at the international conference on advanced materials for energy, environment and health (ICAM-2016) held at IIT Roorkee, Roorkee, India during March 4-7, 2016 (Selected for '*J. Mater. Chem. B* Best Poster Award' sponsored by RSC, Cambridge, UK).
47. N. Chaudhri, N. Sawhney, B. Madhusudhan, **M. Sankar*** and S. Satapathi 'Effect of Functional Groups on Sensitization of Dye Sensitized Solar Cells using Free Base Porphyrins' poster presentation at the international conference on advanced materials for energy, environment and health (ICAM-2016) held at IIT Roorkee, Roorkee, India during March 4-7, 2016.
48. R. Kumar and **M. Sankar*** 'Push-Pull Porphyrins for Dye-Sensitized Solar Cells' poster Presentation at 6th EuCheMS Conference on Nitrogen Ligands, held at Beaune, France during September 13-17, 2015.
49. P. Yadav and **M. Sankar*** 'A₂B Corrole for Selective Colorimetric Detection of Fe^{III} ions' poster Presentation at 6th EuCheMS Conference on Nitrogen Ligands, held at Beaune, France during September 13-17, 2015.
50. N. Chaudhri and **M. Sankar*** 'Synthesis, Spectral and Electrochemical Redox Properties of Porphyrin-based Schiff Bases' poster Presentation at 6th EuCheMS Conference on Nitrogen Ligands, held at Beaune, France during September 13-17, 2015.
51. N. Grover and **M. Sankar*** 'N-Confused Porphyrins-A New Class of Anion Sensors' poster Presentation at 6th EuCheMS Conference on Nitrogen Ligands, held at Beaune, France during September 13-17, 2015.
52. R. Kumar, N. Grover and **M. Sankar*** 'Synthesis and Studies on β -Substituted Novel 'Push-Pull' Porphyrins for Nonlinear Optical (NLO) Applications' poster presentation at the International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.
53. P. Yadav and **M. Sankar*** 'Synthesis, Electrochemical and Spectroscopic Studies of 5,10,15-Tris(phosphoryl/carbo-methoxyphenyl)corroles' poster presentation at the International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.
54. N. Chaudhri and **M. Sankar*** 'Selective Anion Sensing by Electron Deficient porphyrins' poster presentation at the International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.

55. M. K. Chahal and **M. Sankar*** 'Synthesis and Spectroscopic Studies of Supramolecular Porphyrin-Fullerene Host-guest Assemblies' poster presentation at the International Conference on Porphyrins and Phthalocyanines (ICPP-8) held at Istanbul, Turkey during June 22-27, 2014.
56. **M. Sankar**, T. Ishizuka, K. Ohkubo, K. Hasobe, M. Kawano, S. Fukuzumi and T. Kojima 'Supramolecular Assemblies Composed of Saddle-Distorted Porphyrins having Peripheral Carboxyl Groups' poster presentation at the 7th International Conference on Porphyrins and Phthalocyanines (ICPP-7) at Jeju Island, South Korea during July 1-6, 2012.
57. **M. Sankar**, T. Ishizuka and T. Kojima 'Construction of supramolecular architectures based on novel dodecaphenylporphyrin derivatives' poster presentation at the 60th International Conference on Coordination Chemistry at Osaka (60CCCO), Japan during Sept 26-30, 2010.
58. S. Lipstman, **M. Sankar**, S. George and I. Goldberg 'Porphyrin based coordination polymers bridged by lanthanide ions' poster presentation at the 5th International Conference on Porphyrins and Phthalocyanines (ICPP-5) at Moscow, Russia during July 6-11, 2008.
59. C. M. Douaihy, A. Lemeune, **M. Sankar** and R. Guillard 'Synthesis of aminopyridine-phosphonates via palladium catalyzed coupling reaction and their mechanistic pathway' poster presentation at XXIII International Conference on Organometallic Chemistry Conference (ICOMC-08) at Rennes, France during July 14-18, 2008.
60. **M. Sankar**, S. Liptsman, S. George and I. Goldberg 'Synthesis and structures of lanthanide-porphyrin coordination polymers' poster presentation at the 72nd meeting of The Israel Chemical Society during Feb. 6-7, 2007 at Tel-Aviv, Israel.
61. Goldberg, S. Lipstman, **M. Sankar** and S. George 'Crystal engineering of porphyrin-based framework solids' an invited lecture presented at the 24th European Crystallographic Meeting during 22th-27th August 2007 at Marrakech, Morocco.
62. P. Bhyrappa and **M. Sankar** 'Highly substituted porphyrins: Synthesis and their properties' an oral presentation at the 3rd International Conference on Porphyrins and Phthalocyanines (ICPP-3) held at New Orleans, Louisiana, USA during 11th-17th July 2004.

Poster Presentation at the National Conferences: 41

63. S. Kumar and **M. Sankar*** 'Synthesis, Spectral and Electrochemical Studies of π -Extended Porphyrins' Poster Presentation at the 18th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-XVII)*, December 12-14, 2019 at IIT Guwahati, Guwahati, Assam.
64. R. K. Rohal and **M. Sankar*** 'Synthesis of Octa- and Hepta-substituted Cu(II) Complexes of Chlorins and Porphyrins for Naked Eye Detection of Cyanide Ions' Poster Presentation at the 18th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-*

XVII), December 12-14, 2019 at IIT Guwahati, Guwahati, Assam.

65. T. A. Dar and **M. Sankar*** 'Synthesis and Catalytic Applications of β -Functionalized Vanadyl Porphyrins' Poster presentation at the National Conference on Emerging Trends in Chemical Sciences - 2019 (ETCS-2019) held at University of Jammu, Jammu organized by Central University of Jammu during March 14-15, 2019.
66. P. Rathi and **M. Sankar*** 'Regioselective Synthesis and Studies on β -Functionalized 'Push-Pull' Porphyrins' Poster presentation at the National Conference on Organic Molecules as Synthons and Reagents for Innovations held at IIT Roorkee, Roorkee during Feb 08-10, 2019.
67. S. Kumar and **M. Sankar*** ' β -Functionalized Porphyrins for Photovoltaic Applications' Poster presentation at the National Conference on Organic Molecules as Synthons and Reagents for Innovations held at IIT Roorkee, Roorkee during Feb 08-10, 2019.
68. Inderpal and **M. Sankar*** 'Synthesis, Photophysical and Electrochemical Properties of Mono/Tri- β -Substituted EAA Appended Porphyrins' Poster presentation at the National Conference on Organic Molecules as Synthons and Reagents for Innovations held at IIT Roorkee, Roorkee during Feb 08-10, 2019.
69. R. K. Rohal and **M. Sankar*** 'Synthesis of β -Substituted Chlorins and Porphyrins for Naked Eye Sensing of Cyanide Ions' Poster presentation at the National Conference on Organic Molecules as Synthons and Reagents for Innovations held at IIT Roorkee, Roorkee during Feb 08-10, 2019.
70. A. Sharma and **M. Sankar*** 'Synthesis, Structural, Photophysical and Electrochemical Redox Properties of Mixed β -Substituted Porphyrins' Poster presentation at the National Conference on Organic Molecules as Synthons and Reagents for Innovations held at IIT Roorkee, Roorkee during Feb 08-10, 2019.
71. K. Prakash and **M. Sankar*** 'Selective Synthesis of β -Arylamino Substituted Porphyrins' Poster presentation in "ACS On Campus 2018" held at IIT Roorkee on 7th February, 2018.
72. N. Sharma, K. Prakash, V. Sudhakar, **M. Sankar*** and K. Krishnamoorthy 'Synthesis of β -Functionalized Porphyrins and their Application in DSSC' Poster presentation in "ACS On Campus 2018" held at IIT Roorkee on 7th February, 2018.
73. N. Chaudhri, N. Grover, and **M. Sankar*** 'Synthesis, Structural and Intriguing Electrochemical Redox properties of β -Functionalized 'Push-Pull' Porphyrins and Chlorins' Poster presentation in "ACS On Campus 2018" held at IIT Roorkee on 7th February, 2018.
74. T. A. Dar and **M. Sankar*** 'Robust Vanadyl Nonplanar Porphyrin Catalysts for Epoxidation and Oxidative Bromination' poster presentation at 'ACS on Campus 2018' held at IIT Roorkee on February 7, 2018 (*Selected for best poster award*).

75. P. Rathi and **M. Sankar*** 'Synthesis, Spectral and Electrochemical Redox Properties of Asymmetrical β -Substituted Porphyrins' poster presentation at 'ACS on Campus 2018' held at IIT Roorkee on February 7, 2018.
76. N. Grover, N. Chaudhri, and **M. Sankar*** 'Facile Synthesis, Structural, Photophysical and Intriguing Electrochemical Redox properties of β -Functionalized 'Push-Pull' Porphyrins and Chlorins' Poster Presentation at the 17th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-XVII)*, December 12-14, 2017 at IISER Pune and CSIR-NCL, Pune.
77. P. Rathi, T. A. Dar and **M. Sankar*** 'Sterically Crowded Porphyrins: Synthesis and Their Catalytic Applications' Poster Presentation at the 17th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-XVII)*, December 12-14, 2017 at IISER Pune and CSIR-NCL, Pune.
78. K. Prakash and **M. Sankar*** 'Selective Synthesis of β -Arylamino Substituted Porphyrins' Poster Presentation at the 17th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-XVII)*, December 12-14, 2017 at IISER Pune and CSIR-NCL, Pune.
79. Nidhi Sharma, Kamal Prakash, V. Sudhakar, **M. Sankar*** and K. Krishnamoorthy ' β - and *Meso*- Functionalized Push-Pull Porphyrins for DSSC Applications' Poster Presentation at the 17th Symposium on *Modern Trends in Inorganic Chemistry (MTIC-XVII)*, December 12-14, 2017 at IISER Pune and CSIR-NCL, Pune.
80. K. Praksh, P. Sonkar, V. Ganesan and **M. Sankar*** 'Co(II) Porphyrins Decorated Carbon Nanotubes as Catalyst for Oxygen Reduction Reaction (ORR): An Approach for Fuel Cell Improvement' an Oral presentation at *International Conference on Nanotechnology: Ideas, Innovations and Initiatives-2017 (ICN3I-2017)* held at IIT Roorkee, India during 06 Dec-08 Dec, 2017.
81. K. Praksh, R. Kumar, V. Sudhakar, **M. Sankar*** and K. Krishnamoorthy 'Scalable and Cost Effective Synthesis of Donor- π -Acceptor Zn(II) Porphyrin Dyes for DSSC Application' an Oral presentation at *International Conference on Advance in Material and Processing: Challenges and Opportunities (AMPCO-2017)* held at IIT Roorkee, India during 30 Nov-2 Dec, 2017.
82. K. Prakash, P. Sonkar, V. Ganesan and **M. Sankar*** 'Co(II) Porphyrins Decorated CNTs as Catalyst for O₂ Reduction Reaction: An Approach for Fuel Cell Improvement' Poster presentation at *International Conference on Advance in Material and Processing: Challenges and Opportunities (AMPCO-2017)* held at IIT Roorkee, India during 30 Nov-2 Dec, 2017 [**Selected for Best Poster Award**].
83. Tawseef A. Dar and **M. Sankar*** 'Selective Detection of F⁻ ions by Porphyrinic Chemosensors' Poster presentation at the 18th CRSI National Symposium in Chemistry (NSC-18) held at INST Mohali and Punjab University, Chandigarh, during February 5-7, 2016.

84. P. Rathi, N. Grover and **M. Sankar*** 'Spectral Investigation of *Meso*-Tetraalkylporphyrins-Fullerene Host-guest Assemblies' poster presentation at the 18th CRSI National Symposium in Chemistry (NSC-18) held at INST Mohali and Punjab University, Chandigarh, during February 5-7, 2016.
85. K. Prakash, R. Kumar and **M. Sankar*** 'Utilization of Boronic Acid Appended Porphyrins for Anion Sensors' Poster presentation at the 18th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 4-7, 2016 at Punjab University, Chandigarh.
86. N. Chaudhri, N. Grover, K. Anshul and **M. Sankar*** 'Synthesis, Structures and Electrochemical Redox Properties of Asymmetrically β -Substituted Porphyrins' Poster Presentation at the 16th Symposium on Modern Trends in Inorganic Chemistry (*MTIC-XVI*), December 3-5, 2015 at Jadavpur University, Kolkata.
87. R. Kumar, N. Chaudhri and **M. Sankar*** 'Selective Cyanide ion Detection by β -Substituted Electron Deficient Metalloporphyrins' Poster presented at the 17th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 6-8, 2015 at NCL, Pune.
88. K. Prakash, R. Kumar and **M. Sankar*** 'Synthesis, Structural and electrochemical studies on mono and tri- β -Substituted Porphyrins ' poster presented at the 17th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 6-8, 2015 at NCL, Pune.
89. R. Kumar, N. Chaudhri and **M. Sankar*** ' β -Substituted Porphyrins as Cyanide Ion Sensors' Poster presented at Royal Society Chemistry (RSC) India Roadshow held at IIT Delhi on 5th Nov 2014.
90. P. Yadav and **M. Sankar*** 'Synthesis, Spectroscopic and Electrochemical Studies of Phosphoryl and Carbomethoxyphenyl Substituted Corroles, and their Anion Detection Properties' presented at Royal Society Chemistry (RSC) India Roadshow held at IIT Delhi on 5th Nov 2014.
91. M. K. Chahal and **M. Sankar*** 'Naphthyridine-based Fluorescent Chemosensors for the Detection of Explosive Nitroaromatics' presented at Royal Society Chemistry (RSC) India Roadshow held at IIT Delhi on 5th Nov 2014.
92. P. Yadav and **M. Sankar*** 'Synthesis of Carboxy and Phosphonic Acid Corroles for Materials Applications' poster presented at the 16th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 7-9, 2014 at IIT Bombay, India.
93. N. Grover and **M. Sankar*** 'Synthesis of Mixed β -Substituted Push-Pull Porphyrins for Nonlinear Optical (NLO) Application' poster presented at the 16th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 7-9, 2014 at IIT Bombay, India.

94. N. Chaudhri and **M. Sankar*** 'Synthesis and Studies on Sterically Crowded Porphyrins' poster presented at the 16th National Symposium in Chemistry organized by Chemical Research Society of India (CRSI), February 7-9, 2014 at IIT Bombay, India.
95. R. Kumar and **M. Sankar*** 'Synthesis of β -substituted 'Push-pull' Porphyrins for Nonlinear Optical (NLO) Applications' poster presented at the 15th national symposium on *Modern Trends in Inorganic Chemistry (MTIC-XV)*, December 13-16, 2013 at IIT Roorkee, Roorkee, India.
96. **M. Sankar**, T. Ishizuka and T. Kojima 'Photovoltaic Activities and Photoinduced Electron Transfer (PET) Studies on Hydrogen-Bonded Supramolecular Assemblies Composed of Diprotonated Nonplanar Carboxyporphyrins and Electron Donors' poster presentation at Modern Trends in Inorganic Chemistry-XIV (MTIC-XIV) held at University of Hyderabad, Hyderabad, India during 10-13th Dec 2011.
97. **M. Sankar**, T. Ishizuka, K. Ohkubo, K. Hasobe, M. Kawano, S. Fukuzumi and T. Kojima 'Photoinduced Electron Transfer and Photovoltaic Activity of Hydrogen-Bonded Supramolecular Assemblies Composed of Diprotonated Nonplanar Carboxyporphyrins and Electron Donors' poster presentation at ACCC-3 held at New Delhi, India during 17th-20th Oct 2011.
98. **M. Sankar**, T. Ishizuka and T. Kojima 'Preparation of supramolecular assemblies composed of novel dodecaphenylporphyrin derivatives as building blocks' poster presentation at the Japan Chemical Society (JCS) meeting at Tsukuba, Japan during August 30-31, 2010.
99. S. Lipstman, **M. Sankar**, S. George and I. Goldberg 'Synthesis of porphyrin network solids bridged by lanthanide ions' poster presentation at Annual Meeting of Israel Crystallographic Association Meeting at Haifa, Israel during 29th May 2007.
100. **M. Sankar** and P. Bhyrappa, 'Highly substituted porphyrins: Synthesis and their properties' poster presented at the 6th National Symposium in Chemistry organized by CRSI, February 6-8, 2004 at IIT Kanpur, India.
101. **M. Sankar**, P. Bhyrappa and B. Varghese 'Synthesis, structure and properties of novel highly substituted porphyrins' poster presentation at the regional symposium Chemists' Meet 2004 organized by Department of Chemistry at IITM during the period March 26-27, 2004.
102. **M. Sankar** and P. Bhyrappa 'Porphyrins with mixed substituents pattern: Synthesis and their Properties' a poster presented at the national symposium on *Modern Trends in Inorganic Chemistry (MTIC-X)*, December 15-17, 2003 at IIT Bombay, India.
103. **M. Sankar** and P. Bhyrappa 'Unusual photo-physical chemical properties of mixed β -pyrrole substituted *meso*-tetraphenylporphyrins' a poster presented at the 7th National Symposium in Chemistry organized by CRSI, February 4-6, 2005 at IACS, Kolkata, India.

Invited Lectures delivered in the workshops and at other institutions: 4

104. **M. Sankar** 'Synthesis and Applications of Functionalized Porphyrins' invited lecture delivered in the workshop "Molecules & Materials Technology: Interface with R&D and Industries" held at NIT Kurukshetra, Kurukshetra during March 21-26, 2017.
105. **M. Sankar** 'Role of Porphyrinoids in Nanomedicine' invited lecture delivered in the workshop "Recent Advances in Nanomedicine: From Bench to Bedside" held at IIT Roorkee during June 4-8, 2012.
106. **M. Sankar** 'Theories of Coordination Compounds, VSEPR theory for predicting structures and Oxidizing and reducing action based on electrode potentials' guest lectures delivered in the workshop "Refresher Course for Chemistry Teachers" organized by Kendriya Vidyalaya Sangathan (KVS), MHRD, GoI held at KV No.2 BEG & C, Roorkee during December 23-31, 2019.
107. **M. Sankar** 'Synthesis of *Meso*- and β -Functionalized Porphyrins for Dye-Sensitized Solar Cell (DSSC), Nonlinear Optics (NLO), Catalysis and Anion Sensing' an invited lecture delivered at the Department of Chemistry, Pondicherry University, Puducherry on 26th September 2019.

List of Completed and Ongoing Sponsored Research Projects

Role as Project Investigator (PI) 05 (Completed) + 01 (Ongoing)

Total Amount: 140.49 Lakhs

1. Synthesis of Zn(II) complexes of Carboxylic acid Substituted Porphyrins for Dye-Sensitized Solar Cells (DSSC) Applications, SRIC, IIT Roorkee, 4.75 Lakhs, 2012-2015, Completed. No. FIG-100576
2. Photophysical and Photovoltaic Properties of Novel Porphyrin-Fullerenes Host-Guest Assemblies, Council for Scientific and Industrial Research (CSIR), New Delhi, 25.80 Lakhs, 2012-2015, Completed. No. CSR-682-CMD
3. Synthesis of Electron Donors appended Carboxyphenyl Substituted Porphyrin Zn(II) complexes (D- π -A) for DSSC Applications, Science and Engineering Research Board (SERB), New Delhi, 27.6 Lakhs, 2013-2016, Completed. No. SER-735-CMD
4. Porphyrin-based Novel Donor- π -Linker-Acceptor Systems for DSSC Applications, Board of Research for Nuclear Sciences (BRNS), Department of Atomic Energy, Mumbai, 22.29 Lakhs, 2013-2016, Completed. No. DAE-702-CMD
5. Synthesis of Novel Metalloporphyrins for Dye-sensitized Solar Cell (DSSC) and Homogenous/Heterogeneous Catalytic Applications, Science and Engineering Research Board (SERB), New Delhi, 19.20 Lakhs, 2017-2018, Completed under N-PDF and I worked as Mentor for this project. No. SER-1038-CMD
6. Synthesis and Studies on Prophyrin Novel Donor-Acceptor systems for Artificial Photosynthesis and Photovoltaic Applications, 9.09 Lakhs, 2018, For BASE availing Fellowship from IUSSTF and DST, New Delhi. IUS-1200-CMD

7. Synthesis of Novel β -Functionalized Porphyrins for Dye-Sensitized Solar Cell (DSSC), Nonlinear Optics (NLO) and Anion Sensing Applications, Science and Engineering Research Board (SERB), New Delhi, 31.80 Lakhs, 2017-2020, Ongoing. No. SER-1109-CMD

Role as Co-Project Investigator (Co-PI) Total Amount: 771.6 Lakhs

- 7 Under SMILE Scheme - Funded by SRIC, IIT Roorkee for the purchase of equipments
Stopped-flow Spectrofluorometer - 80 Lakhs
Integrated Analyzer with High Temperature Vacuum Furnace - 40 Lakhs
Low Resolution Mass Spectrometer - 90 Lakhs
Time Resolved Fluorescence and Sum Frequency Generation Spectroscopy - 561.6 Lakhs

Research Work Highlighted by Media

- 1 'IIT Roorkee and CSIR-NCL jointly develop dyes to increase efficiency of solar cell' by **India Today** (Magazine) and EDUADVISE on 16th Nov 2018.
<https://www.indiatoday.in/education-today/gk-current-affairs/story/iit-roorkee-and-csir-ncl-jointly-develop-porphyrin-dyes-with-light-to-current-conversion-efficiencies-of-7-for-third-generation-solar-cells-1389909-2018-11-16>
- 2 'New methods to detect toxins' by **Rajya Sabha TV** in a weekly **Science Monitor** Program telecasted on 4th March 2018.
https://www.youtube.com/watch?v=eW_Dq6pyTCQ
- 3 'New chemical sensor in offering for explosives detection' by **The Hindu** Newspaper in Business Line Section and Vigyan Prashar, DST on 11th December 2017
http://vigyanprasar.gov.in/isw/explosives_detection_story.html

Membership in Professional Bodies

Member, American Chemical Society (ACS), Washington, USA

MRSC, Royal Society of Chemistry (RSC), Cambridge, UK

Member, Electrochemical Society (ECS), New Jersey, USA

Member, Society of Porphyrins and Phthalocyanines (SPP), Dijon, France

Life Member (LM1563), Chemical Research Society of India (CRSI), Bangalore, India

Declaration

I hereby declare that the information given above is true to the best of my knowledge.

Sincerely yours,

M. Sankar.