

Dr. Prabhuodeyara. M. Gurubasavaraj

Department of Chemistry, Rani Channamma University, Vidyasangama, PBNH-4, Belagavi-591156
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Current Position

Rani Channamma University, Belagavi
Assistant Professor

Professional Positions

Northern Illinois University, DeKalb, Illinois, USA
Raman Postdoctoral Fellow

University of Rochester, Rochester, New York, USA
Research Associate

Nara Institute of Science and Technology, Nara, Japan
Japan Science Promotion for Science (JSPS) Postdoctoral Fellow

Chemogenesis Research and Development Center, Hubli
Team Leader

National Institute of Karnataka (NITK), Suratkal
Assistant Lecturer

Education

PhD : Georg-August University, Gottingen, Germany

Thesis Title: "Synthesis, X-ray Structural Characterization of Oxygen-Bridged Complexes for Olefin Polymerization; A Theoretical Interpretation of Structure Activity Relationship"

Ph.D. in Chemistry, *magna cum laude* (high honors)

Advisors: Prof. Herbert W Roesky

MPhil : Gulbarga University, Gulbarga, India

First Class

Dissertation Title : Studies on bimetallic complexes

MSc : Gulbarga University, Gulbarga, India

First Class

Awards and Recognitions

UGC-NET (Lectureship) Award	:2002 conducted by UGC-CSIR, India
University Stipendium (Fellowship)	:2004-2007 Georg-August University, Gottingen, Germany
Most Cited Article Published	: 2007 Inorganic Chemistry, 46, 1056
Japan Society for Promotion of Science (JSPS)	:2008-2010 Postdoctoral Fellowship, Govt of Japan
NIH Postdoctoral Fellow	:2010-2011 University of Rochester, New York, USA
Who's Who	:2011 Listed in Marques Who's Who World
UGC-Raman postdoctoral Fellowship	:2015-2016 Northern Illinois University, DeKalb, USA
Visiting Professorship	:2015-2016 Universidad Autonoma De Nuevo Leon
Young Scientist (SMYSR) Award	:2016-2017 VGST-SMYSR Govt. of Karnataka
Appreciation letter	:2016 Vice Chancellor Appreciation award
Appreciation letter	:2018 & 2019 Japan Embassy, New Delhi

Membership

Life Member	: International EPR (ESR) Society
Life member	: Indian JSPS Alumni Association (IJAA)
Gen. Secretary, West Chapter-IJAA	: Indian JSPS Alumni Association (IJAA)
BOS, BOE and DC member	: Rani Channamma University, Belagavi

Editorial Activity

Member, Editorial Committee	: Annals of Reviews and Research, Juniper Publishers
Member, Editorial Committee	: Organic and Medicinal Chemistry (IJ), Juniper Publishers Member,
Editorial Committee	: Archives of Organic and Inorganic Chemical Sciences, Lupine
Guest Editor	: Journal of Chemistry, Hindwai Publishing group
Advisory Board Editor	: Spectroscopy, Cambridge Scholar Publishing Group
Editorial Board Member	: Current Organocatalysis

Research Areas

Synthetic organometallic chemistry/Inorganic synthesis
Sustainable development of biodegradable Polymers
Multidimensional NMR spectroscopy for solution structure and dynamics
Catalytic olefin polymerization and co-polymerization
Activation of small molecules
Organometallic and bioinorganic catalysis, Nanomaterials (biomaterials)

Assistant Professor (2013-)

Department of Chemistry, Rani Channamma University, Belgavi

- Designing and synthesizing of biodegradable polymers for sustainable packaging applications.
- Developing biodegradable polymers from the synergic combinations of chemistry & microbiology.
- Synthesized cellulose and starch coated iron oxide nanoparticles for drug delivery.
- Developing low coordinate iron complexes for hydrogen generation and storage.
- Developed diketamine based iron compounds which efficiently store hydrogen
- Microorganism based synthesis of biodegradable polymers
- CO₂, a global warming compound capturing using Cu, Zn, Ca based metal complexes

Research Associate (2010- 2011)

Department of Chemistry, University of Rochester, New York, USA

- Designed, developed new β -diketimate based Fe(II) complexes for N₂ activation
- Extensive experience highly air/moisture sensitive chemistry
- Mimicking the nitrogenase in the laboratory by synthetic methods
- Synthesized unprecedented Fe(I) complex and Fe(II)-alkene/alkyne complexes for ENDOR
- Expertise in Cyclic Voltametry (CV), NMR analysis of paramagnetic complexes, kinetic experiments by NMR.

JSPS Postdoctoral Fellow (2008-2010)

Graduate School of Material Science, Nara Institute of Science and Technology, Japan

- Worked on "Titanium and Aluminum based complexes lactide polymerization
- Designed, synthesized, characterized various atrane based titanium and aluminum
- Heterobimetallic complexes and used them for olefin polymerization
- Synthesized heterobimetallic complexes were used as catalysts for
- Trained in handling GPC (High temp and RT), MALDI
- Expertise in Polymer Characterization by NMR, GPC and MALDI

Patent, Books & Publications

Patent

United States Patent US 8,598,284 B2. Dec 2013, Gurubasavaraj, P. M. and Roesky H.W.
“Oxygen-Bridged Bimetallic Complexes and Polymerization Process”

Book

Gurubasavaraj P. M. and Hosmane N. S. (under preparation) 2018 “Dendrimers, Supramolecular and Nano-clusters: New Synthetic Strategies and Applications” Cambridge Scholars Publishing Ltd, England

Book Chapters

1) Wenwen Y. Gurubasavaraj P. M. Holland P. L. “All Ferrous Iron-Sulfur Clusters” **Structure and bonding**, 2014 Springer Berlin Heidelberg, Springer link publication group

[DOI 10.1007/430-2012-81](https://doi.org/10.1007/430-2012-81)

2) Gurubasavaraj P. M. Gao S. Hosmane N. S. “Compounds of Boron as High Energy Materials” “Comprehensive Energy Systems” 1st Edition, Elsevier 21st Feb 2018 eBook ISBN:9780128149256 ;Book ISBN: 9780128095973

3) Gurubasavaraj P. M.*, Roesky, H W., Hosmane N. S. 2019 “The Oxygen Effect in Heteropolymetallic Catalysis : Oxygen Bridged Group 4 Metal Catalysts for Olefin Polymerization Process” Book Series “Organometallics in Process in Chemistry” in “Topics in Organometallic Chemistry” Volume Springer (Impact Factor 4.5) link publication group

PUBLICATIONS

1) Accounts of Chemical Research (submitted) “Metal-atranes as Potential Precursors for Olefin (Co)-Polymerization” Gurubasavaraj P. M.* and Charanthimath S. J.

2) European Journal of Inorganic Chemistry (submitted) 2019 “A Study on the effect of Ligand Substituent on Olefin and Ring Opening Polymerization Using Aminopyridine Based Titanium Alkoxides” Gurubasavaraj P. M.*

3) European Journal of Inorganic Chemistry (invited) (Manuscript under preparation) “Recent Advances on Organoboron (BODIPY) Compounds: Synthetic Methods, Optical and Nonlinear Optical Properties and Their Medical Applications” Blanca M. Munoz-Flores, Victor M. Jimenez Perez and Gurubasavaraj P. M.* Narayana S Hosmane.

4) Letters in Drug Design & Discovery (Invited) 2019, 16, 492-501 “Azole based small molecule inhibitors as anti-candidal agents”. Gurubasavaraj P. M.* and Charanthimath J. S.

5) Materials today Chemistry 2019, 11, 133-155. “Recent advances in boron-based Schiff base derivatives for organic light-emitting diodes” Vidyasagar, C.C. Munoz Flores, B.M. Jimenez-Perez, V.M. Gurubasavaraj P. M. <https://doi.org/10.1016/j.mtchem.2018.09.010>

6) Archives of Organic and Inorganic Chemical Sciences (invited) 1(2)-2018.AOICS.MS.ID.000110 “Heterobimetallic Aryloxides of Titanatranes with Aluminum Alkyls for Ring opening polymerization (ROP) of rac-Lactide”. Gurubasavaraj P M*

7) Chemical Science (Article) 2017, 8, 5941-5948. “ENDOR Characterization of an Iron-Alkene Complex Provides Insight into a Corresponding Organometallic Intermediate of Nitrogenase,” M. Horitani, K. Grubel,

S.F. McWilliams, B.D. Stubbert, B.Q. Mercado, Y. Yu, Gurubasavaraj P. M., N. S. Lees, P. L. Holland, B. M. Hoffman. [DOI:10.1039/c7sc01602f](https://doi.org/10.1039/c7sc01602f)

8) Organic and medicinal chemistry international journal (invited) (Article) 2017, 3(5), 1-5. “Effect of Concentration and pH on the Size of Silver Nanoparticles Synthesized by Green Chemistry” Anigol L. B., Charanthimath, J. S. Gurubasavaraj P. M.

9) Advanced Materials Letters (Proceedings)(Article) 2017, 2(10), 643-647 “Group 4 Hydroxides and Their Multimetallic Assemblies: Synthesis, 2D NMR Characterization and Use in Catalysis” Gurubasavaraj P. M.,* Jasmith S. C.

10) Journal of American Chemical Society (Article) 2016, 138 (37), pp 12112–12123 “The Mechanism of N-N Double Bond Cleavage by an Iron(II)-Hydride Complex.” Bellows S. M., Emet N., Gurubasavaraj P. M., Brennessel W. W., Bill E., Holland P. L. [DOI : 10.1021/jacs.6b04654](https://doi.org/10.1021/jacs.6b04654)

11) Journal of Organic and Inorganic Chemistry (communication) 2015, 1, 1-5. “Base free Anionic Titanium (IV) Sulfido dimer : Potential precursor to heterometallic assemblies” Gurubasavaraj P. M.* and Roesky H. W. [DOI: 10.21767/2472-1123.100005](https://doi.org/10.21767/2472-1123.100005)

12) Organometallics (Article), 2012, 31 (23), 8237., “Effect of Terminal Aryloxo Ligands in Ethylene Polymerization Using Titanatranes of the Type, [Ti(OAr){O-2,4-R₂C₆H₂-6-CH₂}₃N]: Synthesis, Structural Analysis of the Hetero-bimetallic Complexes of Titanatranes with AlMe₃” Takii Y, Gurubasavaraj P. M., Katao S, and Nomura [KDOI : 10.1021/om3008635](https://doi.org/10.1021/om3008635)

14) Organometallics (Article), 2010, 29 (16), 3500. “Heterobimetallic Complexes of Titanatranes with Aluminum Alkyls: Synthesis, Structural Analysis and their Use in Catalysis for Ethylene Polymerization” Gurubasavaraj P. M., and Nomura K. [DOI:10.1021/om100119g](https://doi.org/10.1021/om100119g)

15) Inorganic Chemistry 2009, 48 (19), 9491. “Synthesis, Structural Analysis of Titanatranes Bearing Terminal Substituted Aryloxo Ligands of the Type, [Ti(OAr){O-2,4-Me₂C₆H₂-6-CH₂}(OCH₂CH₂N)}_n (n = 1,2): Effect of Aryloxo Substituents in the Ethylene Polymerization” Gurubasavaraj P. M. and Nomura K [DOI: 10.1021/ic9008398](https://doi.org/10.1021/ic9008398)

16) Inorganic Chemistry (Article), 2008, 47, 5324. “From Unstable to Stable: Halfmetallocene catalysts for olefin polymerization” Gurubasavaraj P. M., Roesky H. W., Mandal S. K., Oswald R. B., Pal A., Herbst-Irmer, R. [DOI: 10.1021/ic800198e](https://doi.org/10.1021/ic800198e)

17) Journal of Organometallic Chemistry, 2008, 693, (8-9), 1455. “Synthesis, structural characterization, and reactivity of the ethyl substituted aluminum hydroxide and catalytic properties of its derivative” Yang Y., Gurubasavaraj P. M., Ye H., Zhang Z., Roesky H. W., Jones P. G. [DOI:10.1016/j.jorganchem.2007.08.032](https://doi.org/10.1016/j.jorganchem.2007.08.032)

18) Organometallics (Article), 2008, 27, 769. “Organoaluminum Hydroxides Supported by β-Diketiminato Ligands: Synthesis, Structural Characterization, and Reactions” Yang Y., Schulz T., John M., Yang Z., Jimenez-Perez V. M., Roesky H. W., Gurubasavaraj P. M., Stalke D., Ye H. [DOI: 10.1021/om700969g](https://doi.org/10.1021/om700969g)

19) Asian Journal of Chemistry, 2008, 20, 2841. “Synthesis, Characterization, Electrochemistry, and Biological activities of Ni(II) and Cu(II) Complexes with O- and N-donor Ligands of Schiff bases” Gurubasavaraj P. M. *, Veerasha Sharma P. M.

20) Inorganic Chemistry (Article) 2007, 46, 10158. “Oxygen-Bridged Hybrid Metallocene-Nonmetallocene Polymetallic Catalysts of Group 4 Metals for Bimodal Activity in Olefin Polymerization:

Synthesis, Characterization, and Theoretical Investigation”Mandal S. K., **Gurubasavaraj P. M.**, Roesky H. W., Schwab G., Stalke D., Oswald R. B.,Dolle V. [DOI: 10.1021/ic7011765](https://doi.org/10.1021/ic7011765)

21) Journal of Applied Polymer Science(Article) 2007, 103, 834, “Synthesis and Characterization of Polyimide- γ -Fe₂O₃ Nanocomposites” Vijayanand H. V., Arunkumar L.,**Gurubasavaraj P. M.**, Veerasha Sharma P. M., Basavaraja S., Saleem A., Venkataraman A., Ghanwat A., Maldar N. N. [DOI:10.1002/app.25186](https://doi.org/10.1002/app.25186)

22) Journal of the American Chemical Society(Article) 2007, 129, 12049. “Synthesis and Structures of Heteroleptic Sylilenes”So C.-W., Roesky H. W., **Gurubasavaraj P. M.**, Oswald R. B., Gamer M. T., Jones P. G. Blaurock, S. [DOI: 10.1021/ja074019e](https://doi.org/10.1021/ja074019e)

23) Inorganic Chemistry (Article) 2007, 46, 1056. “Synthesis, Structural characterization, Catalytic Properties, and Theoretical Study of Compounds Containing an Al-O-M (M = Ti, Hf) Core”(appeared as MOST CITED ARTICLE PUBLISHED IN 2007)Gurubasavaraj P. M., Mandal S. K., Roesky H. W., Oswald R. B., Pal A., Noltemeyer M. [DOI: 10.1021/ic060538r](https://doi.org/10.1021/ic060538r)

24) Organometallics (Article) 2007, 26, 3346. “Oxygen Effect in Heterobimetallic Catalysis: The Zr-O-Ti System as an Excellent Example for Olefin Polymerization”Gurubasavaraj P. M., Roesky H. W., Sharma P. M. V., Oswald R. B., Dolle V., Herbst-Irmer R., Pal A. [DOI: 10.1021/om070235k](https://doi.org/10.1021/om070235k)

25) Inorganic Chemistry (Article) 2007, 46, 7594. “Synthesis, Structural characterization, and Theoretical Investigation of Compounds Containing an Al-O-M-O-Al (M = Ti, Zr) Core”Mandal S. K., **Gurubasavaraj P. M.**, Roesky H. W., Oswald R. B., Magull, J., Ringe A. [DOI: 10.1021/ic701063v](https://doi.org/10.1021/ic701063v)

26) Asian Journal of Chemistry. 2004, 16(2) , 1009-1012 “Synthesis and Characterization of Co(II), Ni(II), Cu(II), Zn(II) and Hg(II) Complexes of Bidentate Ligand of Schiff Base : Their Biological Activities” **Gurubasavaraj P M.**

Invited Talks/Presentations at Symposia/Conferences

- 1) “Effect of Concentration and pH on the size of Silver nanoparticles synthesized by green chemistry” **Gurubasavaraj P M**, Invited talk, Two days International Conference on Emerging Advancement in Science & Technology (IC EAST 2019), DRDO Delhi, September 5-6, 2019.
- 2) “Bioinorganic Chemistry” **Gurubasavaraj P M**, Invited talk, Two days National Seminar on “Recent Developments in Chemical Sciences (RDICS-2018), Kuvempu University, Sahyadri Science College, Shivamogga, December 28-29, 2018
- 3) “Synthesis, Characterization and Studies on the effect ligands on ring opening polymerization” **Gurubasavaraj P M**, Poster Presentation, Indian JSPS Alumni Association, Vishwabharathi University, September 3-4, 2018 Shantiniketan, India.
- 4) “Comparing Higher Education System Between Indian and Western Universities” **Gurubasavaraj P M**, *resource person*, for two days National Seminar on “New Trends in Higher Education: Enhancing Quality” March 19-20, 2018. Reshmi Degree College, Kalaburagi.
- 5) “Synthesis, Characterization and Studies on the effect ligands on ring opening polymerization” **Gurubasavaraj P M**, Poster Presentation, Indian JSPS Alumni Association, NIO, August 7-8 2017 Goa India.
- 6) ACS Rockford public meeting, Feb 17th 2017, Rockford, Illinois, USA.

- 7) "A Study on the effect of Ligand Substituent on Ring Opening Polymerization Using Phenoxy-imine Based Titanium Alkoxides" **Gurubasavaraj P. M.** Oral Presentation, International Conference on Materials Science & Technology, Delhi, India, 01 - 04 March, 2016,
- 8) "Dinitrogen Cleavage using Iron Catalysts" **Gurubasavaraj P M.**, Invited talk at National Seminar, Department of Chemistry, BK college, Chikkodi (KLE Society) 2015
- 9) "Phenoxy-amine Based Alkoxide Complexes as Catalysts for Ring Opening Polymerization" **Gurubasavaraj P M** and Charanthimath J. "New Directions in Chemical Synthesis" Dec 10-12, 2014, IIT Bombay
- 10) "Ethylene polymerization catalyzed by titanatranes of the type, $[Ti(OR)\{(O-2,4-Me_2C_6H_2)-6-CH_2\}_3N]$, and the hetero-bimetallic Ti-Al complexes, $[TiMe\{(O-2,4-Me_2C_6H_2-6-CH_2)_2(\mu^2-O-2,4-Me_2C_6H_2-6-CH_2)N\}][Me_2Al(\mu^2-OR)]$ " Y. Takii, U. Tewasekson **Gurubasavaraj P M**, A. Inagaki, K. Nomura The Sixteenth International Symposium on Relations between Homogeneous and Heterogeneous Catalysis (ISHHC-16), 8, 2013 (Hokkaido University, Sapporo, Japan.
- 11) "N=N bond cleavage of azobenzene by low-valent iron" Oral presentation in spring ACS meeting in San Diego, CA 2012 oral presentation Bellows S M, **Gurubasavaraj P M**, Brennessel W W, Cundari T R, Holland P L.
- 12) "Catalytic function and the synthesis of titanium complex having a ligand phenoxymultidentate chelate" Yuki T, **Gurubasavaraj P M**, Nomura K. (Osaka, September, 2012) 59th organometallic chemistry debate.
- 13) "Synthesis and catalytic function of titanium complexes with multidentate chelating phenoxy ligand design and creation of olefin polymerization catalysts that have no co-catalyst" Takii Y, **Gurubasavaraj P M**, Nomura K. Surface Science Research Conference 4th catalyst (Kansai University, November, 2011).
- 14) "Reaction Chemistry of Titanatranes with Aluminum Alkyls: Synthesis, Structural Analysis of Hetero-Bimetallic Complexes, and Their Use in Catalysis for Ethylene Polymerization" Takii Y, **Gurubasavaraj P M**, Nomura K. International Symposium on Catalysis and Fine Chemical December 4-8, 2011, Nara, Japan.
- 15) "Development of an olefin polymerization catalyst without a co-catalyst to the polymerization of ethylene synthesis and application of titanium complexes with multidentate chelating ligand phenoxy" Takii Y, **Gurubasavaraj P M**, Nomura K. 1st Festa CSJ Chemical (Tokyo, November, 2011).
- 16) "Design and Synthesis of Titanium Complexes for Olefin Polymerization Catalyst Performance. Catalyst design without MAO" Nomura K, **Gurubasavaraj P M**, Itagaki K, Fujuki M, Hasumi S. 105th Meeting of Catalysis Society of Japan, March 24-25, 2010, Kyoto, Japan.
- 17) "Titanatranes Containing Trianionic Ligands for Ethylene Polymerization" **Gurubasavaraj P M**, Padmanabhan, S, Nomura K. Oral presentation at the 38th Petroleum-Petrochemical International Symposium of JPI (The Japan Petroleum Institute) held at Tokyo, Japan, Tokyo November 2008.
- 18) "Synthesis of New Class of Heterobimetallic Complexes Containing M-O-M' (M = Zr, Ge, Al; M' = Yb, Sm, Sc, Dy, Pr.) for the Olefin and Ring Opening Polymerization (ROP)" **Gurubasavaraj P M**,

Roesky H W. Oral presentation in the Lanthanide Complexes for Catalysis conference held at FreeUniversity Berlin, Germany sponsored by Deutsche Forschungsgemeinschaft (DFG).

- 19) “A New Combustion route to synthesis of Manganese -Zinc Ferrites” Hiremath V A, Vijayanand, Venkataraman A, **Gurubasavaraj P M**, Sastry N V. paper presented in the Advances in Materials Science (AMS-06), 9-10th Jan. 2006, Department of Materials Science, Gulbarga University, Gulbarga.
- 20) Member of the organizing committee of International Symposium conducted by *Nuclear Magnetic resonance Society (NMRS-2003)* at Indian Institute of Science, Bangalore.

Invited lectures at Universities and Institutes/colleges

- Department of Chemistry, Indian Institute of Science Education and Research (IISER), Mohali 2012
Department of Chemistry, Indian Institute of Science Education and Research (IISER), Trivandrum
Department of Chemistry, Indian Institute of Science Education and Research (IISER), Pune 2012
Department of Chemistry, National Institute of Technology, Karnataka, 2012
Department of Chemistry, RLS college, KLE Society, Belagavi 2013
Department of Physics, BK college, KLE Society, Chikkodi 2013
Department of Chemistry, BK college, Maratha Mandal Education Society, 2013
Department of Chemistry, PG Center, Kadur, Kuvempu University, 2014
Department of Chemistry, ThipperudraSwamy College of Arts and Science, Kottur 2015
Chemogenesis Research and Development Center, Hubballi 2015
Department of Chemistry, KLE Society's BK college, Chikkodi 2015
Department of Chemistry, G.I Bagewadi Arts, Science and Commerce College, Nipani, 2016
Department of Chemistry, KRCE Degree College, Bailhongal 2016
Department of Chemistry, JSS Science College, Gokak, 2016
Department of Chemistry, BK college, Maratha Mandal Education Society, 2017
Department of Chemistry, Sahyadri College, Shivamogaa, 2018
Department of Chemistry, BK college, Maratha Mandal Education Society, 2018
Department of Chemistry, PG Center, Kadur, Kuvempu University, 2019
Department of Chemistry, BK college, Maratha Mandal Education Society, 2019