

# RESUME



**Name: Dr. M. Baby Mariyatra**  
**Designation: Assistant Professor**  
**Department: Chemistry**  
**Address: 21, North Highground Road, St. Xavier's College (Autonomous)**  
**Palayamkottai 627 002**

## PERSONAL DETAILS

Date of Birth : 03.06.1977  
Qualification : MSc, CSIR-NET, PhD.  
Designation : Assistant Professor  
Department : Chemistry  
Community : BC  
Religion : Christian (Roman Catholic)  
Nationality : Indian  
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## ACADEMIC QUALIFICATIONS

Degree	Specialization	College	University
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BSc	Chemistry	Holy Cross College, Tiruchirappalli	Bharathidasan University, Tiruchirappalli
MSc	Chemistry	-	Bharathidasan University, Tiruchirappalli
PhD	Chemistry	-	Bharathidasan University, Tiruchirappalli
Postdoctoral Researcher	Inorganic Chemistry	-	Indian Institute of Technology- Bombay, Mumbai
Postdoctoral Researcher	Inorganic Chemistry	-	University of Dublin, Trinity College, Ireland

### ACADEMIC IDENTITY

*VIDWAN ID	290485
*ORCID ID	0000-0002-7738-5186
*SCOPUS ID	6504077600
*RESEARCHER ID/ PUBLONS ID	GPW-9775-2022
GOOGLE SCHOLAR LINK	<a href="https://scholar.google.com/citations?hl=en&amp;user=XNSvvm4AAAAJ&amp;view_op=list">https://scholar.google.com/citations?hl=en&amp;user=XNSvvm4AAAAJ&amp;view_op=list</a>

### TEACHING EXPERIENCE

<b>Date of Appointment</b>	01.07.2013
<b>Date of Retirement</b>	30.06.2037
<b>Teaching Experience</b>	UG: 09 years
	PG: -
	M.Phil: Nil
<b>Research</b>	Guided M Phil: Nil Guided Ph D: 01 Guiding PhD Scholar: Nil

COURSES/CLAS SES TAUGHT	NAME OF THE INSTITUTIONS	DURATION		Years
		From	To	
Physical Chemistry	St. Xavier's College, Palayamkottai	2013	Till date	09
Biomolecules	St. Xavier's College, Palayamkottai	2013	2021	08

Allied Chemistry	St. Xavier's College, Palayamkottai	2013	Till date	09
Photochemistry	St. Xavier's College, Palayamkottai	2013	2015	02
Supramolecular Chemistry	St. Xavier's College, Palayamkottai	2015	2017	02

<b>AWARDS RECEIVED</b>	
1.	Science Academies Teacher Fellow 2017, Indian Academy of Sciences, India
2.	Postdoctoral fellowship <b>2010</b> , University of Dublin, Trinity College, Ireland
3.	Research Project selected under DST-Women Scientist Scheme, 2009, IIT-B, Mumbai
4.	Ranked 4th in M.Sc. Programme
5.	Awarded Distinction in B.Sc. Programme

<b>ADMINISTRATIVE EXPERIENCE</b>			
<b>S. No</b>	<b>DESIGNATION</b>	<b>INSTITUTIONS</b>	<b>YEAR</b>
1	Dean of Science	St. Xavier's College, Palayamkottai	Feb 2020 -July 2020
2	Dean of Research & UGC Affairs	St. Xavier's College, Palayamkottai	2020-2023

<b>MEMBERSHIP</b>		
<b>S. No</b>	<b>Designation</b>	<b>Particulars</b>
1.	Associate member	Royal Society of Chemistry, UK
2.	Member	Editorial Board, Scientia Acta Xaveriana - An International Journal of Basic and Applied Sciences (March 2014- August 2020).
3.	Managing Editor	Scientia Acta Xaveriana- An International Journal of Basic and Applied Sciences (From September 2020)
4.	Member	YWCA, Palayamkottai

**ORIENTATION / REFRESHER COURSES / FACULTY DEVELOPMENT PROGRAMME UNDERGONE ( )**

<b>S. No</b>	<b>Name of the Training</b>	<b>Name of the Sponsoring Agency</b>	<b>Place and Date</b>
1	108 <sup>th</sup> Orientation Programme for college teachers	UGC, New Delhi	UGC-HRDC, Bharathidasan University Trichirappalli, 12 November - 02 December 2019.
2	UGC sponsored online Refresher Course in Nano Science	UGC, New Delhi	UGC-HRDC, Bharathidasan University Trichirappalli, 21 November - 08 December 2020.
3	UGC sponsored online workshop on MOOCs & Open Educational Resources, conducted by	UGC, New Delhi	UGC-HRDC, Bharathidasan University Trichirappalli, 16 - 22 September 2020.
4	UGC sponsored online Refresher Course in Chemistry	UGC, New Delhi	UGC-HRDC, University of Hyderabad, Telangana, 08-20 November 2021.
5	ONLINE TWO - WEEK INTERDISCIPLINARY REFRESHER COURSE/FACULTY DEVELOPMENT PROGRAMME on “Research Methodology”	MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING	Teaching Learning Centre, Ramanujan College University of Delhi in collaboration with NIRMALA COLLEGE MUVATTUPUZHA, KERALA, 21 September – 05 October, 2021
6	Online one week Faculty Development Programme on “Advanced Pedagogical Techniques”	MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING	Teaching Learning Centre, Ramanujan College University of Delhi, 13 - 19 September, 2021

**DETAILS OF RESEARCH WORK**

<b>Research Stages</b>	<b>Title of the Thesis</b>	<b>University where the work was carried out</b>

Research Scholar	Synthesis, solid state and solution structural studies of organometallic and coordination compounds of Hg(II) & U(VI) derived from phosphorus ylides.	School of Chemistry, Bharathidasan University
Postdoctoral Fellow	<ul style="list-style-type: none"> <li>• Design and synthesis of carboxylate ligands as building blocks for chiral MOFs</li> <li>• Synthesis of coordination polymers of Metal phosphates using sodium salt of dimethylphosphate and N-donor ancillary ligands.</li> </ul>	Department of Chemistry, Indian Institute of Technology – Bombay, Mumbai
Postdoctoral Fellow	<ul style="list-style-type: none"> <li>• Synthesis of functionalized organodiphosphonate linkers using Pd- catalysed C-C or P-C bond forming reaction as key steps.</li> <li>• Synthesis, crystallization, X-ray crystallographic and spectroscopic characterization of nanoscopic mixed valent polyoxovanadate cages.</li> </ul>	School of Chemistry, The University of Dublin, Trinity College, Dublin, Ireland

### AREAS OF RESEARCH

Functional inorganic materials for energy, gas storage, catalysis and drug delivery

Single Crystal XRD, Crystal Engineering

Nanomaterials for catalysis

### RESEARCH PROJECTS CARRIED OUT

S. No	Title of the Project (Minor)	Name of the Funding Agency & Amount	Duration
-	-	-	-

<b>PUBLICATIONS</b>				
<b>BOOKS</b>	<b>BOOK CHAPTERS</b>	<b>SCOPUS</b>	<b>WEB OF SCIENCE</b>	<b>UGC LISTED</b>
	<b>01</b>	<b>17</b>		<b>01</b>
<b>OTHER INDEXED</b>	<b>AS A RESOURCE PERSON</b>	<b>PAPERS PRESENTED IN NATIONAL AND INTERNATIONAL SEMINARS</b>	<b>WEBINARS, SEMINARS, WORKSHOPS ATTENDED</b>	
<b>01</b>	<b>09</b>	<b>11</b>	<b>21</b>	

<b>PUBLICATIONS: BOOKS ()</b>			
<b>S. No</b>	<b>Title of the Book</b>	<b>Publication</b>	<b>Year</b>

<b>BOOK CHAPTERS ()</b>			
<b>S. No</b>	<b>Title of the Paper</b>	<b>Name of the Book</b>	<b>ISSN No., Pg.No</b>
1.	Together we will reduce the food loss	Global Initiatives for Waste Reduction and Cutting Food Loss	ISBN10: 1522577068, IGI-Global publishers, USA. Page No. 237-242

<b>PUBLICATIONS: SCOPUS INDEXED JOURNALS () WEB OF SCIENCE ()</b>			
<b>S. No</b>	<b>Title of the Paper</b>	<b>Name of the Journal</b>	<b>ISSN No., year, Volume, Issue, Pg. No &amp; Impact factor</b>
1.	1,3-diyne bridged porphyrin dimers via Cu-catalysis: Synthesis, optical properties and application in fullerene binding.	J. mol.Struct.	2021, <u>1240</u> , 130570 & I.F 3.841

2.	Polymorphism and benzene solvent controlled stimuli responsive reversible fluorescence switching in triphenylphosphoniumfluorenylide crystals.	<i>New J. Chem.</i>	2017, <b>41</b> , 4592-4598 & I. F 3.925
3.	Crystal structure of <i>N</i> -(2,2,2-trichloro-1-hydroxyethyl)formamide.	<i>Acta Crystallogr.</i>	2015, E71, 1501-1504 & I. F 0.646
4.	Homologous size-extension of hybrid vanadate capsules – solid state structures, solution stability and surface deposition.	<i>Chem Commun.</i>	2014, <b>50</b> , 2265 & I. F 6.065
5.	. {4,6-Bis[( <i>E</i> )-1-methyl-2-(pyridin-2-ylmethylidene- <i>N</i> )hydrazinyl- <i>N</i> 2]pyrimidine- <i>N</i> 1}dichloridocopper(II) methanol disolvate monohydrate.	<i>Acta Crystallogr.</i>	2011, E67, m1073-m1074
6.	{4,6-Bis[( <i>E</i> )-1-methyl-2-(pyridin-2-ylmethylidene)hydrazinyl]pyrimidine-3 <i>N,N',N''</i> }dichloridomanganese(II).	<i>Acta Crystallogr.</i>	2011, E67, m1676 & I. F 0.646
7.	Bidentate coordination of a diketo phosphorus ylide: Synthesis and structure of [(C <sub>6</sub> H <sub>5</sub> ) <sub>3</sub> PC(COCH <sub>3</sub> )(COC <sub>6</sub> H <sub>5</sub> )- <i>κ</i> -O, <i>O'</i> ]UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> .	<i>J.Coord. Chem.</i>	2007, 61, 270 – 276 & I. F 1.751
8.	The synthesis and structural characterization of the Mercury(II) halide complexes of the phosphorus ylide, Carbethoxymethylenetriphenylphosphorane.	<i>J.Organomet. Chem.,</i>	2007, 692, 1081-1086 & I. F 2.369
9.	The preparation and structural elucidation of U(VI) complexes and salts of phosphorus ylides, Ph <sub>3</sub> PCHCOPh, Ph <sub>3</sub> PC(COCH <sub>3</sub> )(COPh) and Ph <sub>3</sub> PCHCOOCH <sub>2</sub> CH <sub>3</sub> .	<i>Inorg. Chim. Acta</i>	2006, 359, 35-43 & I. F 2.545
10.	Di(μ <sub>2</sub> -halogeno)-bis[halogeno(triphenylphosphine)mercury(II)], [Ph <sub>3</sub> PHgX(μ <sub>2</sub> -)X <sub>2</sub> HgPPh <sub>3</sub> ] re-investigated at 120 K for X=Cl and Br, and a second polymorph for X=I.	<i>Acta Crystallogr.</i>	2005, C61, m211-m214 & I. F 1.184
11.	The 2:1 adducts of (benzoylmethylene)triphenylphosphorane with fumaric and terephthalic acid.	<i>Acta Crystallogr.</i>	2004, C60, o839-o842 & I. F 1.184
12	Orthorhombic and monoclinic polymorphs of 1,3,5-triphenyl-1,3,5-perhydro-2,4,6-trione at 120 K; chains and sheets formed by C-H...π (arene) hydrogen bonds.	<i>Acta Crystallogr.</i>	2004, C60, o682 – o685 & I. F 1.184

13	Intra and interionic C-H...O interactions in benzoylmethyl triphenylphosphonium picrate.	<i>Acta Crystallogr.</i>	2004, E60, o123–o125 & I. F 0.646
14	Benzoylmethyltriphenylphosphonium hydrogen maleate: Supramolecular layer formation due to C-H...O interactions.	<i>Acta Crystallogr.</i>	2004, E60, o162–o164 & I. F 0.646
15	Triphenyl(benzoylmethyl)Phosphonium iodide: Supramolecular zigzag chains via C-H...O hydrogen bonding stabilized by C-H...I interactions.	<i>Acta Crystallogr.</i>	2003, E59, o255–o257 & I. F 0.646
16	Triphenyl(benzoylmethyl)Phosphonium nitrate: A three dimensional hydrogen bonded network.	<i>Acta Crystallogr.</i>	2002, E58, o807–o809 & I. F 0.646
17	Triphenyl(benzoylmethyl)phosphonium hexabromocadm(II): Supromolecular aggregation through extensive C-H...Br and C-H...O interactions,	<i>Acta Crystallogr.</i>	2002, E58, m694-m696 & I. F 0.646

#### **PUBLICATIONS: UGC LISTED JOURNALS ()**

<b>S. No</b>	<b>Title of the Paper</b>	<b>Name of the Journal</b>	<b>ISSN No., Year, Volume, Issue, Pg. No &amp; Impact factor</b>
1.	Impact of cold plasma irradiation on the germination indices in green gram ( <i>Vigna radiata</i> ) under water stress	Journal of Emerging Technologies and Innovative Research	ISSN-2349-5162 , 2018, 5 (12), 485 -490 & I.F. 7.95

#### **PUBLICATIONS: OTHER INDEXED JOURNALS ()**

<b>S. No</b>	<b>Title of the Paper</b>	<b>Name of the Journal</b>	<b>ISSN No., Year, Volume, Issue, Impact factor &amp;Pg.No</b>
1.	Cold plasma technology in agriculture and food industry - a review	<i>Scientia Acta Xaveriana,</i>	ISSN 0976-1152, 2018, 9 (2), 1- 18.




<b>AS A RESOURCE PERSON (26)</b>			
<b>S. No</b>	<b>Name of the Event</b>	<b>Name of the Sponsoring Agency</b>	<b>Place and Date</b>
1.	Webinar on 'Learn to Learn English for Academic Purpose.	Sri Ramalinga Sowdambigai College of Science & Commerce, Coimbatore	Sri Ramalinga Sowdambigai College of Science & Commerce, Coimbatore and 27 September 2021
2.	"Nano: Small wonders"	Department of Physics, St. Xavier's College, Palayamkottai	Department of Physics, St. Xavier's College, Palayamkottai and 22 February 2018.
3.	"Nano- A world of opportunities", State level seminar on Nano- Small wonders Endless Frontiers,	PG and Research Department of Physics, Holy Cross College, Tiruchirappalli,	Holy Cross College, Tiruchirappalli, 24 January 2018.
4.	"Hybrid organic and Inorganic Porous Framework materials for advanced applications, UGC sponsored state level seminar on Expanding Frontiers in Chemistry,	UGC, New Delhi	Arul Anandar College, Madurai, 23 September 2016.
5.	"Designing Organic Synthesis-Retrosynthetic Approach", Department of Chemistry, Mother Theresa Women's University, Kodaikonal, 2 April, 2016.	Department of Chemistry, Mother Theresa Women's University, Kodaikonal,	Mother Theresa Women's University, Kodaikonal and 2 April, 2016.

6.	“Asymmetric Synthesis”, Department of Chemistry, Mother Theresa Women’s University, Kodaikonal, 2 April, 2016.	Department of Chemistry, Mother Theresa Women’s University, Kodaikonal,	Mother Theresa Women’s University, Kodaikonal and 2 April, 2016.
7.	“Infrared spectroscopy” in Second Hands-on Experimental Workshop on Characterization Techniques, PSN College of Engineering and Technology, Tirunelveli, 8 October 2015.	PSN College of Engineering and Technology	PSN College of Engineering and Technology, Tirunelveli, 8 October 2015.
8.	“Chemistry for the Community” in “Young Student Scientist Programme for School children (IX-X std)”	TNSCST, Tamil Nadu	St. Xavier’s College, April-May, 2014.
9.	“Change or Be Changed” III Year UG and I & II PG students, St.Xavier’s College, Palayamkottai.	St.Xavier’s College, Palayamkottai.	St.Xavier’s College, Palayamkottai.

### WEBMINARS/SEMINARS/ CONFERENCES / SYMPOSIA / WORKSHOP

**PAPER PRESENTED: National (8) International (3)**

S. No	Name of the Event	Name of the Sponsoring Agency	Place and Date
1.	<i>Supramolecular aggregation through C-H...Br and C-H...O interactions:Crystal structure of Bis(benzomethyltriphenylphosphonium)hexabromocadm(II),</i> <b>M. Baby Mariyatra, K. Panchanatheswaran and A.E. Goeta, ,</b> 32 <sup>nd</sup> National Seminar on Crystallography,	Indian Crystallographic Association and University of Jammu	Department of Physics, University of Jammu, Jammu

			Tawi,INDIA, October 24- 26, 2002.
2.	<i>Phosponium ylides as proton sponges</i> , M. Kalyanasundari, K. Panchanatheswaran and <b>M. Baby Mariyatra</b> , 32 <sup>nd</sup> National Seminar on Crystallography,	Indian Crystallographic Association and University of Jammu	Department of Physics, University of Jammu, Jammu Tawi,INDIA, October 24-26, 2002.
3.	<i>Small molecule activation using ylide complexes: Reactions of phenylisothiocyanate with trans-bis(benzoylmethylenetriphenylphosphorane-κ-O)dinitratodioxouranium(VI)</i> , B. Kalyanasundari, <b>M. Baby Mariyatra</b> , R. Amsarani, K. Panchanatheswaran and A. G. Samuelson, Fifth National Symposium in Chemistry,	CRSI	CLRI, Chennai, INDIA, February 7-9, 2003.
4	<i>Synthesis of mercury(II) organometallics using phosphoylides: Their reactivity towards aldehydes</i> , <b>M. Baby Mariyatra</b> and K.Panchanatheswaran, INDO-US conference on Recent Advances in organometallic catalysis and Olefin polymerisation,	DST, New Delhi	Indian Institute of Technology- Madras, Chennai, INDIA, December, 10-12, 2003.
5.	<i>Molecular structure of resonance stabilized phosphorus ylides-II:Crystallographic Investigations</i> , K. Panchanatheswaran, <b>M. Baby Mariyatra</b> and S. Jose kavitha, 33rd National Seminar on Crystallography,	Indian Crystallographic Association and NCL, Pune	NCL, Pune, INDIA, Jan 8-10, 2004.
6.	<i>Molecular and Supramolecular structure of Chloral Formamide</i> , R. Divya Reshmini, S. Jenifer, M. Marimuthu & <b>M. Baby Mariyatra</b> , One day National seminar on Current trends in Chemistry,	A P C Mahalaxmi College for women, Thoothukudi	A P C Mahalaxmi College for women, Thoothukudi August 27, 2014.
7.	Mapping conceptual understanding: A useful tool for curriculum design and evaluation, National seminar on “innovations in student centered Teaching-learning process in 21st century”	NAAC	St. Xavier’s College, Palayamkottai, 29-30 January, 2015.

8.	“Student Training and Action for Neighbourhood Development project in St.Xavier’s College” in Two day seminar on Extension Activities: Challenges and Opportunities in Tamil Nadu Jesuit Colleges,	Jesuit Management, Tiruchirappalli	St.Joseph’s College, Tiruchirappalli, 12, 13 Feb 2016.
9.	<i>Formation, Crystal Structures and supramolecular organization of metalates derived from triphenylphosphoniumflurenylide</i> , <b>M. Baby Mariyatra</b> & Georgina Rosair, International conference on functional materials,	DST	PSN centre for scientific and applied research, Tirunelveli, september 7-10, 2016.
10.	<i>Hydrogen bonding analysis of hydrazine derivatives</i> , C. Selvakumari, S. Muthuselvi & M. Baby Mariyatra, National Seminar on Advances in Material science,	Department of Chemistry, St. Xavier’s College, Palayamkottai	Department of Chemistry, St. Xavier’s College, Palayamkottai, March 5, 2018
11.	Phosphonium Metalates: Synthesis, structures and supramolecular organization, M. Baby Mariyatra, S. Jose Kavitha, K. Panchanatheswaran, International conference on Recent advances in chemistry.	Mother Theresa Women’s University, Kodaikanal	Mother Theresa Women’s University, Kodaikanal and January 9, 2018

<b>WEBINARS/SEMINARS/ CONFERENCES / SYMPOSIA / WORKSHOP ATTENDED:</b>			
<b>S. No</b>	<b>Name of the Event</b>	<b>Name of the Sponsoring Agency</b>	<b>Place and Date</b>
1.	Regional Seminar on Environmental management (UGC sponsored),	UGC	St. Xavier’s College, Palayamkottai, 7th March 2014.
2.	Lecture workshop on Emerging trends in Chemistry,	Indian Academy of Sciences, Bangalore	Devanga Arts College, Aruppukottai and July 18-20, 2014.

3.	Academia-Industry Interaction Meet,	Lady Doak College, Madurai	Lady Doak College, Madurai and 26 August, 2014,
4.	The Second International Conference on emerging technologies for clean water,	DST	Indian Institute of Technology-Madras, Chennai, October 23-24, 2014.
5.	Workshop on Computing with R	DBT	St. Xavier's College, Palayamkottai.
6.	International Conference on Recent Advances in materials research and its applications,	UGC	St. Xavier's College, Palayamkottai, December 16, 2015
7.	International Conference on new dimensions in Mathematical Biology.	DBT	St. Xavier's College, Palayamkottai, December 18, 2015.
8.	State level seminar on Equity and Access: Women empowerment in higher education institutions in India.	Tamil Nadu state council for higher education	St. Xavier's College, Palayamkottai, March 11, 2016.
9.	Workshop on e-content development	UGC	St. Xavier's College, Palayamkottai November 12 – 15, 2015.
10.	International workshop on electronic structure of coordination complexes	DST, DBT, INSA, BRNS	Department of Chemistry, Indian Institute of Technology-Bombay, Mumbai, May 16-18, 2016.
11.	International conference on Modern Trends in Molecular Magnets	DST, DBT, INSA, BRNS	Department of Chemistry, Indian Institute of

			Technology-Bombay, Mumbai, May 19-21, 2016.
12.	Eighty third annual meeting of Indian Academy of Sciences,	Indian Academy of Science, Bangalore	North eastern Hill University, Shillong, Meghalaya, 02-05 November 2017.
13.	National Seminar on Recent Advances in Material Science,	UGC	Department of Chemistry, St. Xavier's College, Palayamkottai, March 05, 2018.
14.	Two day workshop on NAAC REFORMS:OUTCOME BASED EDUCATION-AN OVERVIEW,	Management, V.O.C. College	V.O.C. College Tuticorin 14-15 December 2018.
15.	State Level Workshop on Public Financial Management System (PFMS) with Special Reference to TSA,	Management, Nesamony Memorial Christian College, Marthandam	Nesamony Memorial Christian College, Marthandam, 20-21 September 2021.
16.	10-Day Hands-on Training on Advanced Molecular Docking,	-	Directorate of Research, SAFI Institute of Advanced Study, Calicut, Kerala in association with SIAS Research Forum, 16-26 October 2021.

### COUNTRIES VISITED

United Kingdom	Ireland	Switzerland	

**EXTRA-CURRICULAR ACTIVITIES/ CO-CURRICULAR ACTIVITIES  
ATTENDED (NCC/NSS/YRC/SPORTS/LITERARY AND CULTURAL  
ACTIVITIES)**

Member of Campus Ministry

Member of Enviro Club

Member of AICUF

Staff in-charge for STAND- outreach Programme (2014-2015)

Staff in-charge for Fine Arts (2013-2014 & 2016-2017)

Staff in-charge for Sports (2015-2016)

Member in YRC & RRC

**Date: 16.08.2022**

**Name: Dr. M. Baby Mariyatra**