

# Curriculum Vitae

## A. Personnel Particulars

Name Dr. P.G.ROMEO  
Father's Name P. Govindan  
Designation Professor  
Address (Official) Department of Mathematics  
Cochin University of Science and Technology  
CUSAT, Kochi, Kerala 682022  
Email romeo\_parackal@yahoo.com  
romeopg@cusat.ac.in  
Address (Residential) Parackal House  
Second Cross, Temple Road  
Koonamthai, Edapally PO  
Ernakulam, Kerala 682024

## B. Degrees Conferred

M.Sc Mathematics University of Kerala, INDIA 1985  
PhD Mathematics University of Kerala, INDIA 1993

Title of Thesis Cross connections of concordant semigroups.  
Thesis advisor Prof. K.S.S. Nambooripad  
University of Kerala. Thiruvananthapuram.

## C. Research/Teaching experience (In Chronological order)

Name of Institution	Period of Service		Nature of duties
	From	To	
University of Kerala	1986	1991	Research Scholar
State Planning Board	1991	1993	Research Assistant
Centre for Math. Science, Kerala	1993	1995	Post Doctoral Fellow
S.N College, Nattika, Kerala	1995	2001	Assistant Professor Teaching/Research
T.M Govt. College, Tirur, Kerala	2001	2002	Assistant Professor Teaching/Research
G. E. C, Thrissur, Kerala	2002	2011	Reader/Associate Professor Teaching, Supervising PhD Research

Dept. of Maths CUSAT	2011	2012	Professor, Teaching, Supervising PhD Research
Dept. of Maths. CUSAT	2012	2015	Professor and Head, Dept Administration, Teaching Supervising PhD Research
Dept. of Maths. CUSAT	2016	2017	Professor, Teaching, Supervising PhD Research
Dept. of Maths. CUSAT	2017	2017	Professor and Head, Dept Administration, Teaching Supervising PhD Research
Dept. of Maths. CUSAT	2017	2018	Professor, Teaching, Supervising PhD Research
Dept. of Maths. CUSAT	2018	--	Professor and Head, Administration, Teaching, Supervising PhD

## D. Research Publications

### a. Research Publications in International Referred Journals.

1. Translations in semirings and semirings of translations, Siji Michhale and P G Romeo, Malaya Juornal of Matematik, Vol.B, No.2, 527-530, 2020, DOI: 10.26637MJM0802.
2. Groupoids and involution Rings, P G Romeo and K.K.Sneha, Asian Journal of Algebra ISSN 1994-540X, DOI: 1.3923/aja.2020.1.5.
3. Cross-connection Structure of Concordant Semigroups., P.A. Azeef Mohammed, P.G. Romeo and K.S.S. Nambooripad, International Journal of Algebra and Computation, World Scientific, Vol 30, No1, pp.181-216 (2020), DOI: org/10.1142/S021819671950070X.
4. On the lattice of biorder ideals of regular rings., R. Akhila and P.G. Romeo, Asian-European Journal of Mathematics , World Scientific, Vol 11, February 2019 , DOI: org/10.1142/S179355712050103X .
5. Ring of rectangular matrices under sandwich operation., P G Romeo, International journal of scientific and technical research, Issue 9, Vol.3, ISSN 2249-9954, 2019.
6. On cardinality of centralizers in full transformation semigroups, Lejo J Manavalan and P G Romeo, IJRAR (2019) Vol 6, Issue 2, ISSN 2051-2937.
7. On matrix semigroups and matrix semigroup amalgams, Smisha M A and P G Romeo, IJAR (2019) Vol 6, Issue 2, ISSN 2349-5158.
8. On generating senigroups from functions, Lejo J Manavalan and P G Romeo, Adv. Inequal. Appl. (2019), ISSN 2050-7461.

9. On the category of R-modules over non commutative rings., P G Romeo and P.R. Sreejamole, Bulletin of Kerala Mathematical Association, Vol .15, June 2018.
10. Additive Biordered Set Derived from a Ring., P G Romeo and R. Akhila, Southeast Asian Bulletin of Mathematics, (2018) 42 : 111-116.
11. On some semigroups generated from Cayley functions., Lejo J Manavalan and P G Romeo, Journal of Semigroup theory, (2018), <http://doi.org/10.28919/jsta/3562>.
12. Green's Relations and Translations in Rings., P G Romeo and Sreejamole P R, MAT Journals, Journal of Statistics and Mathematical Engineering, Volume 3, Issue 3, ,2017, Page 1-10.
13. Cross-connection of Boolean Lattice., P G Romeo and Sreejamole P R, International Journal of Algebra, Vol 11, 2017, no.4, 171-179.
14. On the Category of Ideals of Ring., P G Romeo and Sreejamole P R, Journal of Mathematics and System Science 7(2017) 94-99.
15. On Biordered Set of Rings; P G Romeo and R. Akhila, Malaya Bulletin of Mathematik, Vol.4, Issue 3, 2016, 463-467.
16. On Rees Matrix Semirings; P G Romeo and R. Akhila, Advances in Algebra, Vol 7 (2014).
17. Natural Partial Order on Some Class of Semigroups; P G Romeo and M.S.Jisha, International Journal of Algebra, Vol. 8 (2014) No.10, 479-484.
18. On Category of S – Sets, P G Romeo, Journal of Algebra and Discrete Structures, Vol.9 (2011) No pp. 19-29.
19. Coextensions of Abundant Semigroups, P G Romeo, The Southeast Asian Bulletin of Mathematics, (2011), 35, 1-5.
20. Fundamental Representation of Weakly Adequate Semigroups, P G Romeo, Advances in Algebra, Vol 4, No.1 (2011) pp 1 - 8.
21. Concordant categories and semigroups, P G Romeo, Advances in Algebra, Vol 3, No 1, (2010) pp 63-77.
22. Fundamental Weakly abundant semigroups, P G Romeo, Journal of Algebra and Discrete Structures, Vol.7 (2009), No1, pp. 43-51.
23. Concordant Semigroups and Balanced Categories, P G Romeo, The Southeast Asian Bulletin of Mathematics, (2007) 31; 949 – 961.
24. Universal Regular Semigroup of a Concordant Semigroup, P G Romeo, Bull. Caicutta Math. Soc.88, 7-36 (1996).

#### **b. Books Published**

Structure of Concordant Semigroups-II; Cross-connections, Academic Publishing AG&Co Saarbrucken Dudweiler LandstraBe 99, 66123 Saarbrucken Germany 2010.

**c. Book Edited**

- i. Tensors, Fractals and Integral transforms. Department of Mathematics, Govt. Engineering College, Thrissur, 2009.
- ii. Semigroups, Algebras and Operator Theory, ISSN 2194-1009 ISSN 2194-1017 (electronic) 47 Springer Proceedings in Mathematics & Statistics 489 ISBN 978-81-322-2487-7 ISBN 978-81-322-2488-4 (eBook), 2015.
- iii. Semigroups Algebras and Applications, ISBN 978-93-80095-86-6, Proceedings of the International Conference ICSAA-2015, Cochin University Publication , March, 2016.

**d. Publications in Proceedings of National / International Conferences.**

1. Biorordered Sets from a Complemented Modular Lattice, Proceedings of the International Conference on Algebra and Discrete Mathematics, Madurai Kamaraj University, Madurai, January 08-10, ISSN :2348-6600, 2018.
2. Abelian Normal Category of Semisimple R-Modules, Proceedings of the International Conference on Algebra and Discrete Mathematics, Madurai Kamaraj University, Madurai, January 08-10, ISSN :2348-6600, 2018.
3. Ideal Categories of Semigroups, Proceedings of 11th International Conference MSAST 2017, December 21-23, IMBS International Research Institute, Kolkutta, India, P. 71-81.
4. On lattice of biorordered ideals of regular rings; <http://ciencias.pt/en/conferencia/csa-2016/> International Conference on Semigroups and Automata (CSA-2016), University of Lisbon, Portugal, June 20-24, 2016.
5. Embedding of Rees Matrix Semigroup Amalgam (jointly with Smisha M A), Proceedings of ICSAA-2015, ISBN 978-93-80095-80-6, March 2016.
6. Biororder Ideals and Regular Rings; (jointly with R. Akhila), Algebra and Applications, Springer Proceedings in Mathematics and Statistics, 174, DOI 10.1007/978-981-10-16516.6\_15, 2016.
7. Abelian Normal Categories, Proceedings of 9th International Conference of IMBS, Kolkutta, India December 21- 23, 2015, ISBN 978-81-925832-3-5, Vol 4 P.274.
8. Biorordered Sets and Regular Rings, Semigroups Algebras and Operator Theory, Springer Proceedings in Mathematics and Statistics, ISSN 2194-1009, Vol. 142, 2015.

9. Biordered Sets and Von Neumann Algebras, Proceedings of Sixth International Conference MSAST 2012, IMBS International Research Institute, Kolkutta, December 21- 23,2012, P.59.
10. Biordered sets and lattice of projections of von Neumann algebras, Proceedings of the National seminar on Algebra, Analysis and Discrete Mathematics, Department of Mathematics, University of Kerala, Feb. 2012. page 55-59.
11. Rees Matrix Semigroup of a Rectangular Band (jointly with Diana MaryGeorge), Proceedings of the International Conference on Algebra and its Applications, Periyar Maniammai University, December 2011, page 115-120.
12. Representations of Unit Regular Semigroups, Proceedings of the Fifth International Conference MSAST 2011, IMBS International Research Institute, Kolkutta, December 18- 20, P.68.
13. Coextensions of Weakly Abundant Semigroups, Fourth International Conference MSAST 2010, IMBS International Research Institute, Kolkutta, December 19-21, 2010.
14. Coextensions of Weakly Abundant Semigroups, Proceedings of the International Conference on Groupoids, Semigroups and Automata, University of Kerala, 2010.
15. Cross-connection Semigroups and Duality, Proceedings of the International Conference on Algebra and its applications, Aligarh Muslim University, Aligarh, Feb 20 – 22, 2010.
16. Coextensions of Abundant Semigroups by Fundamental Semigroups, Proceeding of the National Seminar on Algebra, Analysis and Discrete Mathematics, University of Kerala, December 2008, page 39-45.
17. Connections and Dual Connections of Adequate Semigroups, Proceeding of the National Seminar on Algebra, Analysis and Discrete Mathematics, University of Kerala, November 2007.
18. Ideal Categories of Concordant Semigroups, Proceeding of the International Symposium on Semigroup and Applications, University of Kerala, August 2006.
19. Balanced Categories and Generalized Green's Relations, Proceedins of the National Seminar on Algebra, Analysis and Discrete Mathematics, University of Kerala, January 2005.
20. On the Abundant Semigroup  $BL(H)$ , Proceedings of the International Seminar on Mathematical Tradition of Kerala, St. Dominic's College, Kanjirapally, Kerala, January 2000.
21. Semigroup of Bounded Linear Operators on a Hilbert Space, Proceedings of the Natioanl Seminar on Recent Trends in Algebra and its Applications, Annamalai University, August 1999.
22. Generalized Green's Relations on Semigroup of Operators, Proceedins of the International Conference on Algebra and its Applications, Aligrah Muslim University, Aligarh, Nov. 13 – 16, 1997.

23. Balanced Category  $B(H)$  of Closed Subspaces of a Hilbert Space, Proceedings of the International Symposium on Regular Semigroup, University of Kerala, July 4 – 7, 1995.
24. Cross Connections of Concordant Semigroups – 1, Proceeding of the fourth Ramanujan Symposium, University of Madras, Feb. 1995.

**e. Publications in arXiv**

1. Category of chain bundles, P.G.Romeo and Riya Jose, arXiv: submit/3090546[math CT] 17 March 2020.
2. Local subsemigroups and variants of some class of semigroups., Siji Michael and P G Romeo, arXiv: submit/2906179 [math.GR] 30 Oct 2019.
3. Ideal categories of rings and the ring of cones., Sreejamol P R and P G Romeo, arXiv: submit/2772005[math CT] July 2019.
4. Directed graphs of Caley functions., Lejo J Manavalan and P G Romeo, arXiv:1907.00672v1 [math.RA] Jul 2019.
5. Cross-connection Structure of Concordant Semigroups., Aef Mohammed P A, P G Romeo and K.S.S.Nambooripad, arXiv: 1806.11031v1, June 2018.

**f. Invited Talks delivered in National/International Conferences.**

1. Invited talk “Representation theory of finite groups” National Seminar Series “AGORA” 2020, Sree Narayana College, Kollam, 25 February, 2020.
2. Invited talk “Cross-connections a categorical duality”, Asia Australia Algebra Conference, Western Sidney University, Australia, 21-25, January 2019.
3. Invited talk “Representation theory of finite groups and semigroups”. National conference, St Brechmans College, Changanacherry, 17 January 2019.
4. Invited Talk “Cross-Connections and Duality” International Conference on Algebra and Discrete Mathematics, Madurai Kamaraj University, January 08-10, 2018.
5. Invited Talk “Ideal Categories of Semigroups”, 11th International Conference MSAST 2017, December 21-23, IMBS International Research Institute, Kolkutta, India.
6. Key note address Prof. C. Kochumman Memorial Lecture, Department of Mathematics, Mar Thoma College, Tiruvalla, March 06, 2017.
7. Invited talk, “ On Bordered sets, Regular rings and Projection Lattices”, National Seminar on Algebra and Analysis, Department of Mathematics, University College, Thiruvananthapuram, Kerala, February 01-03, 2017.

8. Invited talk “Biorordered sets of rings with involution”, International Conference on Algebra and its Applications (ICAA-2014), Department of Mathematics, Aligarh Muslim University, Aligarh, November 12-14,2016.
9. Talk on “Cross connections and concordant semigroups”, Faculty of Science, University of Porto, Porto, Portugal, June 28, 2016.
10. Talk on “Cross connections and balanced categories”, Department of Mathematics, University of Coimbra, Portugal, June 27, 2016.
11. Contributed Talk “On lattice of biorordered ideals of regular rings” International Conference on Semigroups and Automata (CSA-2016), University of Lisbon, Lisbon, Portugal, June 20-24, 2016.
12. Invited Talk on “Matrix Factorizations”, UGC sponsord national conference, Department of Mathematics, D.B.College, Sasthamkotta, Kerala, February18-20, 2016.
13. Invited talk entitled “Cross Connections and Abelian Categories”, International Conference on Semigroups Algebras and Applications (ICSAA ), Department of Mathematics, CUSAT, Kochi, India, September 17-19, 2015.
14. Invited talk entitled “Biorordered sets and Von Neumann Regular Rings” at the International Conference on Algebra and its Applications (ICAA-2014), Department of Mathematics, Aligarh Muslim University, Aligarh, December 15-17, 2014.
15. Talk on “Moore Penrose Inverses and Inverse Semigroups” Department of Mathematics, Maharajas College, Eranakulam, October 2014.
16. Talk on “Inverse and Generalized Inverses” in the UGC National seminar at Cochin College, Kochi, October-2014.
17. Talk on “Generalized Inverses and Factorization of Matrices” in the UGC National Seminar on Advance Mathematical Analysis and Operator Theory organized by Department of Mathematics, Aquinas College, Kochi, January 23-24, 2014.
18. Talk on “Singular Value Decompositions” in the training programme on “Machine learning techniques and its applications” organized by department of computer Science and Engineering, College of Engineering, Cherthala, March 2014.
19. Invited talk on von Neumann Algebras and Biorordered Sets in the International Conference Algebra and Discrete Mathematics by the Department Mathematics, Govt. College Kattapana during March 04-06, 2014.
20. Invited talk on Biorordered Sets and Regular Rings, International Conference on Semigroups Algebras and Operator Theory (ICSAOT-2014), Department of Mathematics, CUSAT, Kochi, India, February 27-29, 2014.

21. Invited talk in the National Workshop-cum-Colloquium on Applicable Mathematics in Basic Science Education & Research organized by Srinivasa Ramanujan Institute for Basic Science under KSCSTE during 05-07 April 2013.
22. Invited talk at the Workshop on Syllabus Revision for P.G.Courses in Mathematics organized by Department of Mathematics, University of Kerala, 10-11 July 2013.
23. Invited Talk given in the National Seminar on Algebra organized by Department of Mathematics, University of Kerala, 26 th March 2013.
24. Invited talk On Weakly Orthodox Semigroups in the National Conference, Govt. College Kattapana, November 28-30, 2012.
25. Invited lectures at the vacation training programme at the National Academy of Sciences, Allahabad, India, June 12-13, 2011.
26. Invited talk given in the International Conference on Groupoids, Semigroups and Automata, Department of Mathematics, University of Kerala, August 2010.
27. International Conference on Algebra and its Applications (ICAA-10), Department of Mathematics, Aligarh Muslim University, Aligarh, February 20-22 2010.

**g. Public Talks Given.**

Talk reviewing the book “Theory of regular Semigroups” authored by K.S.S.Nambooripad at the release function of the book organized at Kerala University Campus Kariavattom on 03 rd July 2018.

**E. Major Scientific Fields of Interest**

Algebraic Theory of Semigroups, Linear Algebra, Operator Algebras, Theory of Categories, Topology, Algebraic Topology, Group Representation Theory

**F. Details of Memberships in Universities/Professional Bodies**

1. Elected to member senate, CUSAT unopposed from the consistency of Heads of departments, January 2019.
2. Member, Academic Committee for Post Graduate Courses CUSAT from 22.02.2018 onwards.
3. Member, Faculty of Science, CUSAT, Kochi, Kerala for four years from 25.03.2017.
4. Member, Board of studies, Mathematics, CUSAT, Kochi 2012-15 and for four years with effect from 25.03.2017.
5. Member, Academic Council, CUSAT, Kochi, Kerala, India, 2012-15., 2018 onwards.
6. Member, Board of Studies for M.Sc. Integrated Programme, CUSAT form 2018 onwards.
7. Member in the Board of Studies (U.G) of the University of Calicut for the period 2007-2010.
8. Executive trustee, Mathematical and Statistical Science Trust, Kerala; 2019 onwards.



9. Life member Kerala Mathematical Association, also acted as chapter secretary and executive committee member for the period 2001 – 2004.
10. Life member Indian Mathematical Association, 2013.

#### **F. Visits to Universities for Academic purpose**

1. Western Sydney University, Australia, to deliver an invited talk in the Asia Australia Algebra Conference, January 21-25, 2019.
2. University of Lisbon, Lisbon, Portugal, to deliver an invited talk in the International Conference on Semigroups and Automata (CSA-2016), June 20-24, 2016.
3. University of Coimbra, Portugal, to give a research seminar at Department of Mathematics, June 27, 2016.
4. University of Porto, Porto, Portugal, to give a talk and a research seminar in Faculty of Science of the University in June 28, 2016.

#### **G. International/ National Seminars organized as coordinator/ convener**

1. Convener, International Conference on Semigroups and Applications (ICSAA-2019), Department of Mathematics, CUSAT, December 09-12, 2019.
2. Convener, International Conference on Recent Trends in Graph Theory and Combinatorics (ICRTGC-2018), Department of Mathematics, CUSAT, Kochi, India, April 26-29, 2018.
3. Convener, International Conference on Semigroups, Algebras and Applications (ICSAA-2015), Department of Mathematics, CUSAT, September 17-19, 2015.
4. Convener, International Conference on Semigroups, Algebras and Operator Theory (ICSAOT-2014), Department of Mathematics, CUSAT, February 26-28, 2014.
5. Convener, Instructional Workshop on Semigroups and Applications, Department of Mathematics, CUSAT, February 22-24, 2014.
6. Convener, National Conference on Algebra and Number Theory (NCANT-2012), Department of Mathematics, CUSAT, August 16-18, 2012.
7. Coordinator, AICTE – SDP, Two weeks training programme 16 – 28 Nov. 2009, Department of Mathematics, Govt. Engineering College, Thrissur.
8. Convener, One day National Seminar on Discrete Structures, Department of Mathematics, Government Engineering College, Thrissur Feb 2004.
9. Convener, One day National Seminar on Measure and Integration at Department of Mathematics, Sree Narayana College, Nattika, Thrissur on 04.02.2000.

#### **H. Teaching Activities**

**a. Courses taught during the last five years**

- For PhD Course work: Theory of Semigroups, Theory of Generalized Inverses, Category Theory
- For M.Phil course: Algebra, Group Representation Theory.
- For M.Sc. course: Abstract Algebra, Linear Algebra, Algebraic Topology, Functional Analysis and Real Analysis.

**b. List of M Phil Dissertations awarded under my guidance**

Sl. No	Reg. No	Name of Student	Year
1	41818001	Anjeli K K	2019
2	41818002	Arathy A N	2019
3	41818007	Sneha K K	2019
4	17MAMP002	Anumol Thomas	2018
5	75517008	Smitha O	2017
6	75517009	Snehamole Sabu	2017
7	75517002	Aryamol P C	2017
8	75516008	Rani P R	2016
9	75516007	Rakhi R	2016
10	75516006	Pallavi. K	2016
11	75516004	Jintumol K U	2016
12	75516001	Arunkumar C S	2016
13	75516000	Aiswarya Paul	2016
14	75515007	Smitha Davis	2015
15	75515000	Mahesh T V	2015
16	75515002	Ancy Varghese	2015
17	75514002	Anjana Krishnan	2015

18	75514003	Jalja V R	2014
19	75513006	Priya G. Kozhuppakalam	2013
20	75513004	Mable Davies	2013
21	75513002	Jisha M S	2013
22	75512000	Akhila R	2012
23	75512003	Nisha V M	2012
24	75512005	Smruthi K V	2012
25	75512007	Sujisha Manattukundayil	2012

**c. Ph D Dissertations awarded under my guidance.**

Sl. No	Title of Thesis	Name of Candidate	Year
1	Study on regular rings-A biordered set approach.	Akhila R	2019
2	A Study on Cross-Connections of Regular Rings.	Sreejamole P R	2019

**I. Other special distinction**

1. Mentor/ Resource person for INSPIRE Programme, Department of Science and Technology, New Delhi.
2. Member Editorial Board, International Journal of Science, Technology & Society published by Babasaheb Bhimrao Ambedkar University, Lucknow, India, [www.bbau.ac.in](http://www.bbau.ac.in).

**J. Workshops/Training programmes participated.**

1. International Workshop on Leavitt Path Algebras and K-Theory, Department of Mathematics, CUSAT, Kochi, Kerala, 01-03, July 2017.
2. National Workshop on Computer Algebra System (CAS), Organized by Bhaskaracharya Prathisthana (Inst. of Mathematics) 27 – 31 Jan 2011 at Pune. (The workshop is supported by MHRDE, Govt. of India.
3. Orientation Programme for College Teachers, Kerala State Higher Education Council, Trivandrum, July 22-23, 2009.

4. International Instructional Workshop on Convexity and Discrete Structures, Department of Future Studies, University of Kerala, 22 March 2006 to 2 April 2006.
5. UGC Workshop on English to Write, 1988, Department of English and Comparative Literature Madurai Kamaraj University, April 4-10, 1988.

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