CURRICULUM VITAE

FULL NAME Laleen Karunanayake

DATE OF BIRTH 23 January 1964

PLACE OF BIRTH Matara, Sri Lanka

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ADDRESS

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Department of Polymer Science
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EDUCATIONAL QUALIFICATIONS Ph.D. – 1998

Title of the thesis – "Blends of Polyvinyl Chloride with a Polyurethane produced *insitu*"
Polymer Chemistry
University of North London, London, UK.

B.Sc. (Second Class Upper Division) - 1987
Chemistry, Physics and Mathematics
University of Sri Jayewardenepura, Sri Lanka

PROFESSIONAL MEMBERSHIPS

Fellow of Institute of Chemistry, Ceylon (F.I.Chem.C.)
Member of Young Scientists Association, Sri Lanka

WORK EXPERIENCE

August 2019 – to date

Senior Professor – Department of Polymer Science,

University of Sri Jayewardenepura, Sri Lanka

March 2019- March 2022

Dean – Faculty of Applied Sciences

Having won the election held on March 12, 2019 with a clear (65 to 45) majority, I assumed duties as the Dean on March 14, 2019 for a period of three years.

August 2011- August 2019

Professor-– University of Sri Jayewardenepura

Having completed two years of sabbatical leave at SLINTEC, I resumed duties at the department again and was promoted to the post of professor w.e.f 27/06/2011

August 2010 – July 2012

I obtained my sabbatical leave on August 2, 2010 and joined the Sri Lanka Institute of Nano-Technology as a Senior Research Scientist. I carried out research in the field of textile and handled two textile projects as the Principal Investigator. I have had four Research Scientist working under me. I used equipments such as SEM, EDX, TEM, Fluorometer, FTIR, AFM, TGA, DSC, DMA and XRD during my tenure at SLINTEC.

July 2004 – August 2010

I have been assigned as the Course coordinator of MSc in Polymers Science & Technology in 2004 and served as the coordinator till July 2010. I was promoted to the grade I in July 2006.

June 2000 – July 2004

Senior Lecturer – University of Sri Jayewardenepura

I joined the department of chemistry, University of Sri Jayewardenepura, Sri Lanka as a Senior Lecturer (II) in Chemistry. I teach Physical Chemistry of Polymers, Chemistry of Polymers, Polymer Technology, Industrial Polymers, Physical Properties of Polymers and Chemical Kinetics at graduate and undergraduate levels.

March 2002 – March 2003

Postdoctoral Researcher- University of North London, UK

I carried out my postdoctoral research at the University of North London on (1) Composites of glass beads with various engineering plastics and (2) Blends sPS and aPS.

April 1998 – June 2000

Senior Research Officer – Rubber Research Institute of Sri Lanka

After completion of my Ph.D., I have been promoted to a post of Senior Research Officer at RRISL. I was attached to the Raw Rubber and Chemical Analysis Department and was the Officer-in-charge of that department during the period 1990 to 2000. I was involved in carrying out research on the fields of natural rubber and natural rubber latex and their blends.

September 1988 – April 2000

Research Officer Rubber Research Institute of Sri Lanka
After finishing my undergraduate studies, I started my career as a Research Officer at RRISL. During the tenure of my work at RRISL, I have been awarded a scholarship to carry out a research programme leading to a Ph.D. The work carried out in this project included studies of formation of polyurethane using GPC techniques, kinetic studies using DSC and FTIR time lapse spectroscopy and compatibility studies using DMA.

VISITING LECTURER

MSc in Polymer Science course conducted by the University of Sri Jayewardenepura, Sri Lanka

MSc in Polymer Technology course conducted by the University of Moratuwa, Sri Lanka

MSc in Industrial Chemistry conducted by the University of Kelaniya, Sri Lanka

MSc in Applied Organic Chemistry conducted by the University of Colombo, Sri Lanka

MSc in Physics Education conducted the University of Sri Jayewardenepura, Sri Lanka

B.Sc. (Chemistry Special) course conducted by the Eastern University of Sri Lanka

Visiting Academic of the Open University of Sri Lanka

Moderation of Polymer Chemistry Papers of Rajarata University of Sri Lanka
Graduateship courses conducted by College of Chemical Sciences of Institute of Chemistry, Ceylon

Training courses conducted by the National Institute of Plantation Management of Sri Lanka

Diploma in Plastics & Rubber conducted by Plastics & Rubber Institute of Sri Lanka

SUPERVISING

Internal Supervisor for an **Mphil** student (K.A.K.D. Chandrasekara) attached to the University of Sri Jayewardenepura, Sri Lanka titled "*Protective Measures for the Current Latex Allergy Problem – Solution to a serious threat to our Natural Rubber Industry"* - Degree was awarded in 2007

Internal Supervisor for a **PhD** student (S. Arasaratnem) attached to the

University of Sri Jayewardenepura, Sri Lanka titled "*Utilization of tannins obtained from locally available plant materials in the manufacture of formaldehyde based resins"* – NSF Grant (No. RG/2006/EB/04) -Degree was awarded in 2010

External Supervisor for a **PhD** student (K.G. Padmasiri) attached to the London Metropolitan University, London, UK. titled "*Use of locally available fatty acids and their derivatives as a Plasticizer/Stabilizer for PVC"* - NSF Grant (No. RG/2006/FR/03) - Degree was awarded in 2009

Internal Supervisor for an **MPhil** student (G.D. Krishantha) attached to the University of Sri Jayewardenepura, Sri Lanka titled "*Development of Irradiated Natural rubber/NR/EPDM based composite materials for outdoor applications"*- Degree was awarded in 2011

Internal Supervisor for a **PhD** student (R.R.M.S.K. Ranatunga) attached to the University of Sri Jayewardenepura, Sri Lanka titled "*A study on use of polypropylene(PP) and PP composites in the manufacture of castor wheels and their effect, on processing, dynamic and static characteristics"* – Degree was awarded in 2016

Internal Supervisor for a **PhD** student (M.A.S.R. Senevirathna) attached to the University of Sri Jayewardenepura, Sri Lanka titled "*Physical and photo properties of 4,4'- methylenebis(phenylisocyanate) and polytetrahydrofuran based polyurethanes"* – NSF Grant No. No. RG/2011/NANO/01; Degree was awarded in 2016

Internal Supervisor for a **PhD** student (A.P.Attanayaka) attached to the University of Sri Jayewardenepura, Sri Lanka titled "Effect of ethephone stimulation on NR latex properties & development of new preservative system for stimulated latex to identify the specific preservative system for stimulated latex.*"* – Degree was awarded in 2016

Internal Supervisor for a **PhD** student (B.S.W.Karunarathna) attached to the University of Sri Jayewardenepura, Sri Lanka titled "Computational Study on the molecular behavior of MDI based Polyurethane*"* – Degree was awarded in 2020

REFERRING/ EXAMINING

Referee for papers presented at the Engineering Research Symposiums 2001, 2002, 2003,2004 and 2005 of University of Moratuwa, Sri Lanka.

Evaluator for NSF for the research project "Development of irradiated natural rubber (NR) ethylenepropylene-diene terpolymer (EPDM) based composite materials for outdoor applications" -RG/2004/C

Evaluator for NSF for the research project "Development of cardanol based alkyd resin for export market, using Cashew Nut Shells, which is presently disposed in the country" RG/2005/Gen

Evaluation of abstracts submitted for presentation at the international forestry & environmental symposium – 2007

Chairman of Panel of Examiners for following research students:

1. Ms. GPS Premarathne, MSc, "Prevention of microbial growth in paints using herbal biocides in Sri Lanka", University of Moratuwa- 2004
2. Ms. GMGD Dias, MSc., "Preparation and Characterization of Environmentally Friendly Polymer Blends Using Synthetic and Natural Polymers", University of Moratuwa- 2004
3. Ms. APT Sagarika, MSc., "Extraction and Modification of Lignin Resin for Rubber Compounds", University of Moratuwa- 2004
4. Mr.VSC Weragoda, MPhil,"Simulated Vulcanization of Thick-Walled Natural Rubber Components using Oscillating Disk Rheometer Data", University of Moratuwa- 2006
5. Mr.MAB Prasantha, Ph.D., "Synthesis and Characterization of Novel Alkyd Resins Based on a Fatty Oil Available in Sri Lanka", University of Moratuwa – 2007
6. Ms. T.H.Weragoda, MSc., " Investigation of the changes in chemical and physical properties in engine lubricating oils with the usage", University of Colombo – 2008
7. Mr AMPB Samarasekara, MPhil, "Extraction and Modification of Chitosan by Fishery Waste to Develop Biodegradable Polyethylene Films", University of Moratuwa 2009

MSc projects supervised

1. Storage Hardening of Reclaimed Rubber – 1999
2. Effect of Added Magnesium and Phosphate Ion Concentrations on Stability of NR latex and Properties of Dipped Products – 1999

3. The effect of Viscosity and Gelling Agent on Processing of Latex Compound – 2001
4. Use of Natural Oils as a Plasticizer for PVC – 2001
5. Use of Polyamide Membranes In Reverse Osmosis To Purify Salty Water -2003
6. Synthesis of an impact modifier by emulsion polymerization – 2005
7. An investigation to reuse the photopolymer printing plate developing solvent and waste photopolymer as an adhesive – 2006
8. Research on Technology Development for Reclamation of Waste Tire Rubber – 2007
9. A study to reduce the level of chlorination of examination gloves while keeping the glove moisture content (wet glove) low – 2007
10. Development of non-marring glove for coated glass industry – 2009
11. Chemical blooming on solid tyre tread compounds – 2010
12. Use of alternate fillers for industrial solid tyre compound - 2010

COMMITTEES SERVED

Rubber Research Board Consultative Committee on research development of rubber technology - 2009
Sectorial committee on chemical & Polymer technology 2004
Organizing Committee – Annual Sessions of Faculty of Postgraduate Studies - 2007
Committee on Implementation of Social Harmony Project SH2:
Creation of a Sound Understanding of University Student Discipplinay Management- 2005
Council Member, Assistant Editor and Secretary of Monograph Committee of Institute of Chemistry, Ceylon- 2000/2001, 2003/2004, 2004/2005,2008/2009, 2009/2010
Sectoral Committee on Chemical & Polymer Technology of Sri Lanka Standard Institute
Drafting Committee on Standardization of Metrolac Chart of Sri Lanka Standard Institution
Drafting Committee on revision of standard for surgical gloves of Sri Lanka Standard Institution
Working Group on Revision of SLS 111:1989 – Specification For Sanitary Towels
National Committee on Radiation Vulcanization of NR latex.
Task Force for HND Level Polymer Engineering and Technology Study Course of The Plastics & Rubber Institute of Sri Lanka

FELLOWSHIPHS/AWARDS

1. Presidential award for research – 2006
2. Presidential award for research – 2009
3. NRC Merit award for Scientific Publication - 2010
4. Honorary Research Fellow - University of North London – 2002-2005

5. SUSRED award of NSF for year 2010 for supervision of PhD student under the NSF grant (No. RG/2006/EB/04)
6. PRI merit award 2018
7. SUSRED award of NSF for year 2017 for supervision of PhD student under the NSF grant (No. RG/2011/NANO/01)

GRANTS RECEIVED

1. "*Utilization of tannins obtained from locally available plant materials in the manufacture of formaldehyde based resins"* – NSF Grant (No. RG/2006/EB/04)
2. "*Use of locally available fatty acids and their derivatives as a Plasticizer/Stabilizer for PVC"* - NSF Grant (No. RG/2006/FR/03)
3. *"Water based UV-curable polyurethane latex coatings with nano- particles to impart special properties"*- NSF Grant (No. RG/2011/NANO/01)
4. "*Development of industrially viable polymer films-based sensors for foodborne bacteria detection*" - NSF Grant (No. RG/2024/BS/01)

Title of PhD thesis:

"Blends of Polyvinyl Chloride with a Polyurethane Produced *insitu"*

International Seminars & Workshops attended:

1. UNDP/IAEA/RCA Regional Training Course on Radiation Chemistry. Takasaki Radiation Chemistry Research Establishment, JAERI, Japan, 13-24 May 1991
2. RCA Regional Training Course on Quality of Radiation Vulcanized Natural Rubber Latex, 21-25 July 1997, National Atomic Energy Centre, Indonesia.
3. Grant Holders Workshop, UK Centre for Materials Education, 4th September, 2002, Sutton Courtney Abbey, Oxfordshire, UK.

Invited Lecture:

1. "Mathematics in Polymer Industry", the workshop on "Physics & Mathematics for National Development Organized by NSF, September 2000.
2. "Biodegradable Polymers", Training Seminar on Green Chemistry organized by the Institute of chemistry, Ceylon on January 4, 2013.
3. "Polyurethanes: Recent Advances and Developments", IIUPST

Publications:

1. A rapid and accurate method for determining the dry rubber content and total solid content of NR latex, L.M.K. Tillekeratne, L. Karunanayake, P.H. Sarath Kumara, J.Poly.Testing V8(1989),353-358.
2. Epoxidation of Liquid Natural Rubber Made by Means of Solar Energy, L.M.K. Tillekeratne, L.M.V. Tillekeratne and L.Karunanayake, Chemistry in Sri Lanka, V6(1)(1989)
3. Evaluation of performance of some antioxidants/antioxidant systems in radiation prevulcunized NR latex., NMVK. Liyanage, L. Karunanayake and PH Sarath

Kumara, Proceedings of IRRDB seminar on Agronomy Farming and Technology, Sri Lanka (1996)- (presented by L.Karunanayake)

4. Blends of Polyvinyl Chloride with a Polyurethane Produced *insitu,* Mark S.M. Alger and L.Karunanayake, Proceedings of Institute of Materials, Imperial College, London (1995)
5. Blends of Polyvinyl Chloride with a Polyurethane Produced *insitu.* II Kinetics of formation of the polyurethane, Mark. S.M. Alger and L. Karunanayake, EPF-Polymer Materials symposium, Crete, Oct. 1996.
6. Blends of Polyvinyl Chloride with a Polyurethane Produced *insitu.* Ph.D. thesis, University of North London, UK (1997).
7. A novel approach to study kinetics of polymerization or curing of polymers by using differential scanning calorimetric isothermal kinetics, L.Karunanayake, Proceedings of 54th annual sessions of SLAAS, I, 1998.
8. Magnesium content in natural rubber latex, L.Karunanayake, P.H. Sarath Kumara, W.W.Nandasena, L.Wanigatunga, V.Gamage & C. Lokuge, 36-40, RRISL Bulletin.37 (1998)
9. Raw Rubber and Latex properties of clonal rubber, L.Karunanayake, L.Wanigatunga, P.L. Perera, SC Senanayake and H S Weeraman. RRISL, Bulletin, 17-25, RRISL Bulletin. 40(1999)
10. Blends of acrylonitrile butadiene Rubber/Superior Processing Natural Rubber/PVC blends Part 1, K G K de Silva, L. Karunanayake and Krishanthi Muthukrishnan, 1-7, J.RRISL,82 (1999).
11. Rain-guards, the rapid way to increase rubber production, LMK Tillekeratne and L.Karunanayake, 41-43, RRISL Bulletin.41 (2000)
12. Effect of Magnesium and Phosphate Ions on the Stability of Concentrated Natural Rubber Latex and the Properties of Natural Rubber Latex-Dipped Products, L.Karunanayake and G.M.Priyanthi Perera, J.App.Polym.Sci.,99: 3120-3124 (2006)
13. Effect of incorporation of peanut and sesame oils and their epoxides on the structure of PVC, L.Karunanayake and PNJ Fernando, J. Natn.Sci.Foundation Sri Lanka 2006 34(2): 97-102.
14. Formaldehyde based resins prepared using tannin obtained from bark of Terminalia arjuna (Roxb.), S Arasaratnam, L Karunanayake and P Manoharan, SLAAS Proceedings, 62nd Annual Sessions – 2006, Part I, 127.
15. Modification of NR/EPDM/CB composites by co-vulcanization through high energy G- radiation, G C D Krishantha, S Siriwardene, D G Edirisinghe, S S Kulathunga and L.Karunanayake, Conference Proceedings of Asia Rub Tech Expo (2006), India. (115-116)
16. The effect of glass powder on engineering thermoplastics, L.Karunanayake, J. Natn.Sci.Foundation Sri Lanka 2007 35(1): 13-17
17. Modification of NR/EPDM/carbon black composites by co-vulcanization using high energy ɣ-irradiation: Effect of sensitizers, G.D.D. Kirishantha, S.S. Kulatunga, G.M.P.Perera, L.Karunanayake and S. Siriwardena, Chemtech 2007, Colombo, June 2007.
18. Modification of NR/EPDM/carbon black composites by co-vulcanization using high energy ɣ-irradiation: Effect of sensitizer concentration, S. Siriwardena, G.D.D. Kirishantha, G.D. Edirisinghe, G.M.P.Perera, and L.Karunanayake, International Rubber Conference Proceedings 12-13 November 2007, Siem Reap, Cambodia, 605-613.
19. Development of Urea Formaldehyde Resin Based Composites Using Waste

LDPE films from Packaging Industry, Dissanayake, D.M.A.S and Karunanayake L., Proceedings of Twelfth International Forestry and Environment Symposium 2007, Kalutara, Sri Lanka, 71.

20. Use of banana leaves in high quality paper, Hewage, R. and Karunanayake L., Proceedings of thirteenth International Forestry and Environment Symposium 2008, Kalutara, Sri Lanka, 29.
21. Synthesis, characterization, and metal adsorption of Tannin Phenol Formaldehyde Resins obtained from flower buds of *Terminalia turbula*.,Araseratnem, S. and Karunanayake, L. SLAAS Proceedings, 64th Annual Sessions – 2008, Part I, 169.
22. A new technique to gauge the vulcanization kinetics of natural rubber latex using viscosity measurements and the use of the above method to study the effects of variation of activator content on vulcanization of NR latex, JSc –EUSL Volume 5(1) 2008, Pages 32-38, Sathaananthan, T. and Karunanayake, L.
23. Kinetics of degradation of PVC-containing novel neem oil as stabilizer, Journal of Applied Polymer Science,Volume 112(4) 2009, Pages: 2151-2165,Padmasiri K. Gamage, Ahmed S. Farid, L. Karunanayake.
24. Study on natural oils as alternative processing aids and activators in carbon black filled natural rubber, Jayewardhana, W.G.D. , Perera, G.M., Edirisinghe, D.G. and Karunanayake, L. , J. Natn.Sci.Foundation Sri Lanka 2009 37(3): 187193
25. Epoxidation of some vegetable oils and their hydrolysed products with peroxyformic acid, Padmasiri K.Gamage, Micheal O'Brien and Karunanayake, L. J. Natn.Sci.Foundation Sri Lanka 2009 37(4): 229-240
26. Synthesis,characterization, and metal adsorption properties of tannin-phenol formaldehyde resins produced using tannin from dried fruit of Terminalia chebula (Aralu), Araseratnem, S. and Karunanayake, L. J.App.Polym.Sci.,115(2): 1081 - 1088 (2010)
27. Montmorillonite clay nano particle embedded nano fibers for UV protected curtains to be used in smart house with nano technology, Sarasanantham, P., Tissera, P.N., Wijesena, R., **Karunanayake, L.**, International Conference on Sustainable Built Environment (ICSBE- 2010), Kandy, 13-14, December 2010.
28. Epoxidized vegetable oils as processing aids and activators in carbon-black filled natural rubber compounds, Ganga Chandrasekara, M.K. Mahanama, D.G. Edirisinghe and L. Karunanayake, J.Natn.Sci.Foundation Sri Lanka 2011 **39** (3):245-252
29. Preparation and characterization of superhydrophilic silica coatings and their application as antifogging glass, R.Wijesena, N.Tissera, R.Perera, L.Karunanayake and A. De Alwis, 106-108, Proceedings of first national nanotechnologyconference -2012
30. Preparation and characterization of indium doped tin oxide coated glasses and its IR transmission control property, R.Wijesena, R.Perera, N.Tissera, L.Karunanayake and A. De Alwis, 109-111, Proceedings of first national nanotechnologyconference -2012
31. UV blocking fabrics with nano titanium dioxide, R.Perera, N.Tissera, R.Wijesena, L.Karunanayake and A. De Alwis, 125-127, Proceedings of first national nanotechnologyconference -2012
32. Preparation and comparison of polyurethane nano composites, N.Tissera, R.Wijesena, R.Perera, L.Karunanayake and A. De Alwis, 152-154, Proceedings of first national nanotechnologyconference -2012
33. Preperation and characterization of α-Chitin nanofibers from crab shells of *Portunus pelagicus* (blue swimmer crab), R.Wijesena, N.Tissera, R.Perera and

L.Karunanayake, Proceedings of IIUPST2012, 10 (2012)

34. Studies on the kinetics of epoxidationof soybean oil using synthetic cationic exchange resin, S.Arasaretnam and L.Karunanayake, Proceedings of IIUPST2012, 14 (2012)
35. Hydrodynamically and mechanically assisted wet spinning of elastomeric polyurethane filaments, R.Wijesena, N,Tissera, R.Perera and L. Karunanayake Proceedings of IIUPST2012, 16 (2012)
36. Microbial activity in natural rubber latex with currently existing preservative systems, A.P.Attanayake, L.Karunanayake and A.H.R.L.Nilmini, Proceedings of IIUPST2012, 26 (2012)
37. Nano titanium dioxide embedded nano fibers spun from electro spinning technology to produce stain removal and UV blocking nano fibers, N.Tissera, R.Perera, R.Wijesena, L.Karunanayake and A. de Aliwis, Proceedings of IIUPST2012, 30 (2012)
38. Enhancement of photocatalytic activity of nano TiO_2 by doping with nitrogen and its stain removal properties, R.Perera, R.wijesena, N.Tissera and L.Karunanayake, Proceedings of IIUPST2012, 32 (2012)
39. Chitosan/Montmorillonnite composite beads for pH triggered release of silver nanoparticles, R.Wijesena, R.Perera, N,Tissera and L. Karunanayake Proceedings of IIUPST2012, 36 (2012) ,
40. Viscoelastic Properties of Stimulated Rubber, A.P. Attanayake, L.Karunanayake and A.H.R.L. Nilmini, Proceedings of IIUPST2015, 12 (2015)
41. An investigation of the permeation properties of unlined natural rubber gloves, C.K. Karunanayake, L.Karunanayake and M. Badathurage, Proceedings of IIUPST2015, 21(2015)
42. Mechanical and thermal properties of rice husk ash-filled polypropylene composites, R.R.M.S.K. Ranatunga, L. Karunanayake and S.Walpolage, Proceedings of IIUPST2015, 22 (2015)
43. Mechanical properties and interfacial interactions of nylon-6 doped with surface modified silica, L.Karunanayake and C.J.Narangoda, Proceedings of IIUPST2015, 23 (2015)
44. A study of recovery percentage of dry rubber in a latex centrifuging factory, G. Danushka, L.Karunanayake and P.H.S.Kumara, , Proceedings of IIUPST2015, 25 (2015)
45. Investigation of the potential to fabricate a conductive sensor based on fluorescence properties of polyurethane, M.V.L.Pathmakumari, S.Senevirathne, L.Karunanayake, V.Karunaratne and S.Amarasinghe, , Proceedings of IIUPST2015, 33 (2015)
46. Development of a laboratory scale sand filter with microcystin-LR degrading bacillus cereus, Sumaiya Idroos, Pathmalal M. Manage, B.G.D.N.K De Silva and Laleen Karunanayake, 6-9, Proceedings of Academics World 12th International Conference, Singapore, December 2015.
47. The effect of change of ionomer/polyol molar ratio on dispersion stability and crystalline structure of films produced from hydrophilic polyurethanes, Sandhya Rani Senevirathna, Shantha Amarasinghe, Veranja Karunaratne, Masilamani Koneswaran and Laleen Karunanayake, Journal of Applied Polymer Science. 2017, 134, 44475.
48. NANOSILVER PARTICLES FOR IMPROVED ELECTRICAL CONDUCTIVITY OF NATURAL RUBBER COMPOUND FOR NON-MARKING SOLID TIRES, Deshan A.D.K, Sirimuthu N.M.S , Karunanayake L. and Ranatunga R.R.M.S.K, Proceedings-iCMA 2016

49. SYNTHESIS AND CHARACTERIZATION OF RENEWABLE TANNINPHENOL-FORMALDEHYDE CATION EXCHANGE RESIN FROM Terminalia arjuna (KUMBUK) Sumathirathne L.D. and Karunanayake L. Proceedings-iCMA 2016
50. HARD SEGMENT GEOMETRY AND DYNAMICS OF MDI-BASED POLYURETHANE Karunarathna B.S.W, Jayakody R.S., and Karunanayake L. Proceedings-iCMA 2016
51. Kalanika Ariyaratne, Chandani Somaratne, Shantha Walpalage, Kalyani Liyange and Laleen Karunanayake, "Reinforcement of natural rubber latex film using silica filler modified with a commercially available co-polymer solution", IESL annual sessions 2016, 17/Oct/2016, Transactions 2016, 177-184
52. M. Nanayakkara, W. Pabasara, Bandu Samarasekara, S. Amarasinghe and L.Karunanayake, "Synthesis and characterization of cellulose from locally available rice straw", MERcon 2017, 39.(pp. 176-181). IEEE.
53. L. Rajapaksha, H. Saumyadi, Bandu Samarasekara, S. Amarasinghe and L.Karunanayake, " Development of cellulose based light weight polymer composites", MERcon 2017, 39(pp. 182-186). IEEE.
54. Deshan, A.D.K., Sirimuthu, N.M.S., Karunanayake, L., Sarangi, A., Ranatunga, R.R.M.S.K. "ZnO Nanoparticles for Improved Electrical Conductivity of Natural Rubber Composites", Proceedings of IIUPST2017, 03 (2017)
55. Karunarathna, B.S.W., Karunanayake, L., Jayakody, R.S., Development of Model Systems for Computational Studies of MDI-Based Polyurethanes, Proceedings of IIUPST2017, 05 (2017)
56. SYNERGISTIC EFFECT OF CARBON NANOFIBER AND NON-IONIC SURFACTANT FOR IMPROVED ELECTRICAL CONDUCTIVITY OFNATURAL RUBBER COMPOSITES, ADK Deshan, NMS Sirimuthu, L Karunanayake, A Sarangi, R Ranatunga, Indian Journal of Scientific Research, 264-267
57. Saumyadi, H.A.D., Rajapaksha, L.D., Amarasinghe, D.A.S., Karunanayake, L. Samarasekara, A.M.P.B. Fabrication of Cellulose and Polypropylene Based Polymer Composite Material for Engineering Applications, Proceedings of IIUPST2017, 15 (2017)
58. Nanayakkara, M.P.A., Pabasara, W.G.A., Amarasinghe, D.A.S., Karunanayake, L. Samarasekara, A.M.P.B. Prediction of Cellulose Yield from Local Rice Straw Varieties by Thermogravimetric Analysis, Proceedings of IIUPST2017, 26 (2017)
59. Munasinghe, R.M., De Silva, H.I.C., Abeytunga, D.T.U., Karunanayake, L. and Perera, M.G.A.N., Synthesis of cellulose sulfate by enhancing cellulose swelling using microwave energy, SLAAS Proceedings, December 2017
60. Saumyadi, H.A.D., Rajapaksha, L.D., Samarasekara, A.M.P.B., Amarasinghe, D.A.S., Karunanayake, L., Fabrication and Mechanical Properties of Microcrystalline Cellulose Based Polymer Composite for Engineering Applications, Transactions of IESL, 263 (2017)
61. Nanayakkara, M.P.A., Pabasara, W.G.A., Samarasekara, A.M.P.B., Amarasinghe, D.A.S., Karunanayake, L. Extraction and Characterization of Cellulose Materials from Sri Lankan Agricultural Waste, Proceedings of 22nd International Forestry and Environment Symposium 172, 2017
62. Synthesis of novel porous tannin-phenol-formaldehyde cation exchange resin from Terminalia arjuna (Kumbuk), LD Sumathirathne, L Karunanayake, Journal of the National Science Foundation of Sri Lanka 45 (3), 219 – 227 (2017)

63. M.P.A .Nanayakkara, W.G.A Pabasara, A.M.P.B. Samarasekara, D.A.S Amarasinghe and L .Karunanayake, “Extraction of Cellulose from Sri Lankan Agricultural Waste for Engineering Applications”, Annual Transactions of Institution of Engineers Sri Lanka, 2017, Part B, pp 571-578
64. Extraction and Characterisation of Cellulose Materials from Sri Lankan Agricultural Waste, MPA Nanayakkara, WGA Pabasara, A Samarasekara, DAS Amarasinghe, L.Karunanayake, Proceedings of International Forestry and Environment Symposium 22 (2017)
65. Effect of ethephon stimulation on natural rubber latex properties; new insight into ethephon stimulation, AP Attanayake, L Karunanayake, A Nilmini, Journal of the National Science Foundation of Sri Lanka 46 (2): 179-185 (2018) 66. Preparation of Cellulose Based Polymer Composites for Engineering Applications, S.P.D.A. Kumara, A.J.S.Madhusanka, A.M.B.P Samarasekara, DAS Amarasinghe, L.Karunanayake, Annual Sessions of IESL, pp.[687-693], 2018.
67. Investigation of Mechanical and Thermal Properties of Nanofibrillated Cellulose (NFC) Reinforced Polyolefin Composite, K.D.H.N. Kahavita, A.M.P.B Samarasekara, DAS Amarasinghe, L.Karunanayake, Annual Sessions of IESL, pp.[695-702], 2018.
68. A.M.P.B Samarasekara, M.P.A Nanayakkara, W.G.A Pabasara, D.A.S Amarasinghe, L Karunanayake, "Novel Thermogravimetry Based Analytical Method for Cellulose Yield Prediction of Sri Lankan Rice Straw Varieties" .In 2018 Moratuwa Engineering Research Conference (MERCon) 2018 May 30 (pp. 185-190). IEEE.
69. A. M. P. B. Samarasekara, S. P. D. A. Kumara, A. J. S .Madhusanka, D. A. S. Amarasinghe, & L. Karunanayake, (2018, May). "Study of Thermal and Mechanical Properties of Microcrystalline Cellulose and Nanocrystalline Cellulose Based Thermoplastic Material". In *2018 Moratuwa Engineering Research Conference (MERCon)* (pp. 465-470). IEEE.
70. A. M. P. B.Samarasekara, K. D. H. N. Kahavita., D. A. S Amarasinghe, & L. Karunanayake, (2018, May). "Fabrication and Characterization of Nanofibrillated Cellulose (NFC) Reinforced Polymer Composite" In *2018 Moratuwa Engineering Research Conference (MERCon)* (pp. 449-454). IEEE.
71. W.G.A Pabasara, M.P.A Nanayakkara, A. M. P. B. Samarasekara, D. A. S. Amarasinghe and L. Karunanayake, "Extraction and Characterization of biobased Polymeric Materials from Traditional Rice Varieties in Sri Lanka", 30th Annual Congress of the Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka, 15th -16th November 2018 at University of Peradeniya.
72. K. D. H. N. Kahawita, A. M. P. B. Samarasekara, D.A.S Amarasinghe and L. Karunanayake, " Investigation of Mechanical Properties of Nanocellulose Reinforced Synthetic Polymer Composite", 30th Annual Congress of the Postgraduate Institute of Agriculture, University of Peradeniya, Sri Lanka, 15th - 16th November 2018 at University of Peradeniya
73. Wickramasinghe W.A.W.I.C., Lasitha D.S, Samarasekara A.M.P.B., Amarasinghe D.A.S. and Karunanayake L. "Synthesis of Nanocellulose From Rice Straw", 23rd International Forestry and Environment symposium Organized by Department of Forestry and Environmental Science, University of Sri Jayewardenepur, 23rd -24th November 2018, held at Citrus, Waskaduwa, Sri Lanka
74. Kahawita K.D.H.N, Samarasekara A.M.P.B,Amarasinghe D.A.S and Karunanayake L. "Fabrication of Nanofibrillated Cellulose (NFC) Based

Composite Materials For Engineering Applications", 23rd International Forestry and Environment symposium Organized by Department of Forestry and Environmental Science, University of Sri Jayewardenepur, 23rd -24th November 2018, held at Citrus, Waskaduwa, Sri Lanka

75. W.G.A Pabasara, M.P.A Nanayakkara, A. M. P. B. Samarasekara, D. A. S. Amarasinghe and L. Karunanayake, "Extraction and Characterization of Biobased Polymeric Materials from Traditional Rice Varieties in Sri Lanka", Tropical Agricultural Research, Vol. 30 (2): 47 – 54 (2018)

76. K. D. H. N. Kahawita, A. M. P. B. Samarasekara, D.A.S Amarasinghe and L. Karunanayake, Investigation of Mechanical Properties of Nanocellulose Reinforced Synthetic Polymer Composite", Tropical Agricultural Research, Vol. 30 (2): 55 – 64 (2018)

77. W.A.W.I.C. Wickramasinghe., D.S. Lasitha, A.M.P.B.Samarasekara., D.A.S Amarasinghe and L. Karunanayake " Extraction And Characterization of Nanocellulose From Agricultural Waste. ", International Conference on Advanced Materials for Clean Energy and Health Applications (AMCEHA) - 2019 Organized by University of Jaffna, 6th - 8th February 2019, held at University of Jaffna, Sri Lanka

78. K.D.H.N. Kahawita, A.M.P.B.Samarasekara., D.A.S Amarasinghe and L. Karunanayake " Development of Nanofibrillated Cellulose (NFC) Reinforced Polypropylene Based Composite For Engineering Applications ", International Conference on Advanced Materials for Clean Energy and Health Applications (AMCEHA) - 2019 Organized by University of Jaffna, 6th - 8th February 2019, held at University of Jaffna, Sri Lanka.

79. Effect of microstructural arrangement of MDI-based polyurethanes on their photoproperties, SR Senevirathna, DAS Amarasinghe, V Karunaratne, M Koneswaran, L.Karunanayake, Journal of Applied Polymer Science 2019 136 (18), DOI: 10.1002/app.47431

80. Thermal Analysis of Cellulose Fibers Extracted from Locally Available Rice Straw. Ratnakumar, A., Samarasekara, A.M.P.B., Amarasinghe, D.A.S., Karunanayake, L. 24th International Forestry and Environment symposium 2019, 71p.

81. Fabrication of Surface Modified Microcrystalline Cellulose-Polypropylene Composites for Engineering Applications. Rathnayake, W.S.M., Samarasekara, A.M.P.B., Amarasinghe, D.A.S., Karunanayake, L. 24th International Forestry and Environment symposium 2019, 101p.

82. Synthesis and Characterization of Tannin Based Porous Cation Exchange Resins from *Cassia auriculata* (Ranawara), Kuruppu, K.A.D.U.M, Karunanayake, L., Vidyodaya Journal of Science Vol. 22 No.02 (2019) 17-31

83. Sunflower oil-based MCC surface modification to achieve improved thermomechanical properties of a polypropylene composite, WSM Rathnayake, L Karunanayake, AMPB Samarasekara, DAS Amarasinghe, D, Cellulose **27**, 4355–4371(2020) DOI:10.1007/s10570-020-03053-5

84. Thermo-electro-mechanical and Rheological Properties of Rubber Composites Filled with sp^2-Hybridized Different Carbon Fillers, Emil Fernando, Thusitha Etampawala, Laleen Karunanayake, Dharani Abeysinghe, Amanda Ekanayake,

Narayana Sirimuthu, AR Kumarasinhge, Dilhara Edirisinghe, Bulletin of the American Physical Society (2020)

85. Characterization of blends of virgin nitrile rubber and compounded nitrile rubber latex waste reclaimed with urea. Part 1: Cure characteristics, KIDP Perera, DG Edirisinghe, L Karunanayake (2020), Progress in Rubber Plastics and Recycling
Technology, DOI: 10.1177/1477760620918604
86. Characteristics of Natural Cellulose Fibres Extracted from Sri Lankan Rice Straw Varieties A Ratnakumar, A Samarasekara, DAS Amarasinghe, L Karunanayake;Tropical Agricultural Research 31 (3), 72-82(2020)
87. Microcrystalline Cellulose as Reinforcing Agents for Polypropylene Composites; A Ratnakumar, WSM Rathnayake, L Karunanayake, AMPB Samarasekara, DAS Amarasinghe, Tropical Agricultural Research 31 (3), 106-114 (2020)
88. NANOFIBRILLATED CELLULOSE REINFORCED POLYPROPYLENE COMPOSITES: INFLUENCE OF SILANE (SI-69) SURFACE MODIFICATION, K. D. H. N KAHAVITA, M. P. B. SAMARASEKARA, D. A. S. AMARASINGHE, L. KARUNANAYAKE, CELLULOSE CHEMISTRY AND TECHNOLOGY, 54(7-8), 789-797 (2020)
89. A STRATEGY FOR DETERMINING THE CHEMICAL COMPOSITION OF RICE STRAW, MAHESHANI PA NANAYAKKARA, Walagedara GA Pabasara, Adikari MPB Samarasekara, DONAS AMARASINGHE, Laleen Karunanayake (2020) CELLULOSE CHEMISTRY AND TECHNOLOGY,54(9-10),983-991.
90. MCC-based Transducer Material to Detect Relative Humidity,Anne D Fernandopulle, L Karunanayake, AMP B Samarasekara, DA S Amarasinghe, D Attygalle (2020),Moratuwa Engineering Research Conference (MERCon), 205-209 IEEE
91. Chemical modification of Microcrystalline Cellulose using Sunflower oil WSM Rathnayake, L Karunanayake, A Samarasekara, DAS Amarasinghe 2020 Moratuwa Engineering Research Conference (MERCon), 215-219,A Ratnakumar, AMP B Samarasekara, DA S Amarasinghe, L Karunanayake (2020) Moratuwa Engineering Research Conference (MERCon),176-181, IEEE.
92. Property Analysis of Cellulose Fibers Extracted from Traditional Rice Straw Varieties,A Ratnakumar, AMP B Samarasekara, DA S Amarasinghe,
L Karunanayake (2020) Moratuwa Engineering Research Conference (MERCon),176181, IEEE
93. Effect of Particle Size Distribution of Rice Straw on Cellulose Extraction,A Ratnakumar, AMP B Samarasekara, DA S Amarasinghe,
L.Karunanayake (2020) Moratuwa Engineering Research Conference (MERCon),199204, IEEE
94. Thermo-electro-mechanical and Rheological Properties of Rubber Composites Filled with sp^2-Hybridized Different Carbon Fillers, Emil Fernando, Thusitha Etampawala, Laleen Karunanayake, Dharani Abeysinghe, Amanda Ekanayake, Narayana Sirimuthu, AR Kumarasinhge, Dilhara Edirisinghe (2020) Bulletin of the American Physical Society, 65.
95. NANOFIBRILLATED CELLULOSE REINFORCED POLYPROPYLENE COMPOSITES: INFLUENCE OF SILANE (SI-69) SURFACE MODIFICATION, K. D. H. N KAHAVITA, M. P. B.

SAMARASEKARA, D. A. S. AMARASINGHE, L. KARUNANAYAKE (2020) CELLULOSE CHEMISTRY AND TECHNOLOGY, 54(7-8), 789-797.

96. Characteristics of Natural Cellulose Fibres Extracted from Sri Lankan Rice Straw Varieties, A Ratnakumar, A Samarasekara, DAS Amarasinghe, L Karunanayake (2020) Tropical Agricultural Research 31(3):72
97. Cellulose microfibres from traditional rice straw: Physicochemical properties and analytical characterization,A Ratnakumar, A Samarasekara, DAS Amarasinghe, L Karunanayake (2021) Materials Today: Proceedings
98. Computational development and validation of a representative MDI-BDO– based polyurethane hard segment model,B Karunarathna, RS Jayakody, L Karunanayake, KK Govender (2021) Journal of Molecular Modeling 27 (2), 1-20
99. HUMIDITY SENSING POTENTIAL OF A MICROCRYSTALLINE CELLULOSE SHEET, ANNE D. FERNANDOPULLE, LALEEN KARUNANAYAKE, DON A. S. AMARASINGHE, ADIKARI M. P. B. SAMARASEKARA and DINESH ATTYGALLE, Cellulose Chem. Technol., 55 (5-6), 469-475(2021)
100. Individualization of Nanofibrillated Cellulose from Sri Lankan Rice Straw: Structural Characteristics and Thermal Properties, A Ratnakumar, AMPB Samarasekara, DAS Amarasinghe, L Karunanayake, 2021 Moratuwa Engineering Research Conference (MERCon), 37-42
101. Microfibrillated Cellulose Fabrication and Characterization from Sri Lankan Rice Straw: A Comparison between Traditional and Hybrid Variety,2021 Moratuwa Engineering Research Conference (MERCon), 164-168
102. Characterization of Blends of Virgin Nitrile Rubber and Compounded Nitrile Rubber Latex Waste Reclaimed with Urea: Part II-Physico-Mechanical Properties, KIDP Perera, DG Edirisinghe, L.Karunanayake (2021), Journal of Advanced Chemical Sciences, 733-737
103. Waste mica as filler for natural rubber latex foam composites, S. A. V. Dananjaya,Y.R. Somarathna, L. Karunanayake, S. Siriwardena (2022) Journal of Polymer Research 29:71
104. Effect of Sonication Time on Cellulose Nanofiber Disintegration from Locally Available Rice Straw, A Ratnakumar, BAMP Samarasekara, SDA Amarasinghe, L.Karunanayake (2022) Macromolecular Symposia 402 (1), 2100425
105. The influence of particle size on the extraction of cellulose nanofibers using chemical-ultrasonic process, A Ratnakumar, BAMP Samarasekara, DAS Amarasinghe, L.Karunanayake (2022) A. Materials Today: Proceedings Available online 9 May 2022
106. A comparative study on mica waste-filled natural rubber foam composites made out of creamed and centrifuged latex, Seekku Arachchige Vimukthi Dananjaya, Uhanowita Marage Shirani Priyanka, Yashoda Ramyajith Somarathna, Laleen Karunanayake, Susantha Siriwardena (2022) J Vinyl Addit Technol. 1–13
107. Modeling the Mechanical Behavior of Microcrystalline Cellulose-Based Polymer Composite Materials, J. Amutheesan; S. Sukirtha; A.M.P.B Samarasekara; D.A.S Amarasinghe, L.Karunanayake (2022) **2022 Moratuwa Engineering Research Conference (MERCon)**
108. Physical properties of natural rubber latex foams produced with processed mica waste powder and creamed natural rubber latex ,S A V Dananjaya, Y R Somarathna, L Karunanayake and S Siriwardene (2022) Journal of the Rubber Research Institute of Sri Lanka 102, 1-10

109. New Strategy for Synthesizing Catalyst-free HCl-doped Polyaniline, N Dinujaya, C Narangoda, L Karunanayake, PSS Panawala, I Tissera,(2023) Moratuwa Engineering Research Conference (MERCon), 562-567
110. Polyaniline Film-Based Interdigitated Capacitive Sensor for Ammonia Gas DetectionPSS Panawala, Indula Tissera, Naveen Dinujaya, DAS Amarasinghe, Chandima Narangoda, L Karunanayake, D Attygalle, VSC Weragoda, AMPB Samarasekara (2023) Moratuwa Engineering Research Conference (MERCon), 468-472
111. Effects of Latex Type and Processed-Mica Waste Loading on the Structural and Thermo-Physical Properties of Natural Rubber Latex Foam Composites, Vimukthi Dananjaya, Yashoda Somarathna, Susantha Siriwardena, Narayana Sirimuthu, Laleen Karunanayake, Chamil Abeykoon (2024) international Journal of Lightweight Materials and Manufacture, 7 (3), 450-466
112. Enhancement of mechanical properties of natural rubber latex sheets by incorporating allyl-modified microcrystalline cellulose (AMCC), MH Nayanajith, CJ Narangoda, AI Ratnayake, L Karunanayake, ...(2024) Materials Today Communications 41, 110873
113. Property evaluation of mechanically modified thermoset rigid polyurethane foam waste/NBR blends: Effect of blend ratios, KIDP Perera, DG Edirisinghe, Laleen Karunanayake, WM Namal Nishantha (2025) Journal of Elastomers & Plastics, https://doi.org/10.1177/00952443251317609
114. Role and potential of biochar as a sustainable alternative reinforcing fller to carbon black in rubber composites, Laleen Karunanayake, Thusitha Etampawala, Dilusha Jayanidu de Silva, Jagath Bandara, Anushka Upamali Rajapaksha and Meththika Vithanage; Biochar(2025)7:60, https://doi.org/10.1007/s42773-025-00429-3
115. Investigating the aspect ratio and concentration of ZnO nanoparticles as a filler to improve the electrical, thermal and mechanical properties of rubber composites, JJ Mahanthe, L Karunanayake, I Munaweera, DAS Amarasinghe, ...Journal of Rubber Research, 1-17

Monographs:

1. Some Important Aspects of Polymer Characterization, L. Karunanayake, published by Institute of Chemistry, Ceylon (2002) – ISBN 955-9244-16-7
2. Industrially Important Polymers, L. Karunanayake, published by Institute of Chemistry, Ceylon (2002) – ISBN 955-9244-28-0

Edition:

1. UNIT I: Synthesis of Polymers, Faculty of Natural Sciences, OUSL, 2011: ISBN-978-955-23-1285-8
2. UNIT II: Polymer Structures, Faculty of Natural Sciences, OUSL, 2011: ISBN-978-955-23-1286-8
3. UNIT III: Molar Mass and Size of the Polymers, Faculty of Natural Sciences, OUSL, 2011: ISBN-978-955-23-1288-8
4. UNIT IV: Polymer Reactions, Faculty of Natural Sciences, OUSL, 2011: ISBN-978-955-23-1287-8
5. UNIT V: Kinetics of Polymerization, Faculty of Natural Sciences, OUSL: 2011 ISBN-978-955-23-1290-8
6. Editor-in-Chief: IIUPPST- 2012 7. Editor-in-Chief: IIUPPST- 2015

Book Chapters:

Chapter 7: Introduction to Plastics Industry, 169-184, Polymer Industries in Sri Lanka, published by Institute of Chemistry, Ceylon (2004) – ISBN 955-9244-22-1
Chapter 5: Technically Specified Rubber, 61-78, Handbook of Rubber (Vol. 2)- Processing Technology, published by The Rubber Research Institute of Sri Lanka (2003)- ISBN 955-9022-06-7

Patents:

1."Sealant to be used in fixing rainguards to rubber trees" – SL patent 11698
2."Overcoating for Aluminium Foils" – SL patent 13790 – International Patent Classification (IPC) – B29C 41/12
3. "Development of formaldehyde resin based composites using waste from flexible packaging industry" – SL patent 14680 - International Patent Classification (IPC) – C08G 2/00
4. "A composition for stain and odour removal from bio-polymeric fabrics and a process thereof" – SL patent 16366 - International Patent Classification (IPC) – C11D 1/00

Reports:

Annual reviews of Raw Rubber and Chemical Analysis Department, 1997, 1998 & 1999, published in Annual reviews of RRISL

Positions HELD

Senior Treasurer – Chemical Society of University of Sri Jayewardenepura- 2003/2004,
Secretary, Senior Staff Common Room & Welfare Society- 2004/2005, 2005/2006
Deputy Proctor, Faculty of Applied Sciences – January 2005- January 2007
General Secretary, the University Teachers' Association - 2006/2007
Coordinator- MSc in Polymer Sciences & Technology 2005-2007, 2007-2010
Student Counselor: 2001, 2010
Editor-in-chief, IIUPST 2012
Faculty Representative of the University QA cell-2013,2014
Faculty Representative of the University for the committee for preparation of corporate plan -2010, 2013,2014
Chairman/ BSPS (2014 08/04/2014-07/04/2017)
Editor, international journal of multidisciplinary studies
Editor-in-chief, IIUPST 2015
Editor, International Conference on Multidisciplinary Approaches (ICMA), 13th – 14th August 2014.
Editor-in-chief, IIUPST 2017
Board Member, PIM, University of Sri Jayewardenepura 2021-2022