



HARIKRISHNAN P

Senior Research Fellow

PROFILE

Hari Krishnan Pulikkalparambil is a senior research fellow at King Mongkut's University of Technology North Bangkok, Bangkok, Thailand. He completed his B. Tech in Polymer engineering from Mahatma Gandhi University, Kerala, India and M. Tech in Polymer Science and Rubber Technology from Cochin University of Science & Technology, Kerala, India. His research work mainly focusses on preparation and characterization of smart polymeric materials and automotive lightweight composites. During his PhD, he worked on the development of self-healing epoxy coatings. He has published few papers and book chapters in high quality peer reviewed international journals, and co-edited two books.

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WORK EXPERIENCE

Thai-German Graduate School of Engineering - PhD

2017–2020

Development of self-healing epoxy polymers using commercially available plant-based epoxy resin for coating application.

Leibniz-Institutes für Polymerforschung Dresden e.V. – Guest Researcher

2019 [Jun-Aug]

Development of ionic liquid modified self-healing epoxy polymers for flexible coatings.

Thai-German Pre-engineering School - Lecturer

2018–present

Teaching Engineering Materials, Basic engineering tools and Machine drawing for Mechanical engineering diploma students.

Apollo Tyres Ltd. - Executive engineer

2012–2014

Selected as one of 37 GET's in ATT (Apollo's talents trek) batch from campus interviews across India. Carried out day-to-day shift activities and successfully completed OEM projects for improving tyre performance with least rejection.

EDUCATION

Doctor of philosophy

2017 – 2020

Materials Science and Production Engineering
King Mongkut's University of Technology North Bangkok, Thailand

Master of Technology

2014 - 2016

Polymer Science & Rubber Technology
Cochin University of Science & Technology, Kerala, India

Bachelor of Technology

2014 – 2016

Polymer Technology
Mahatma Gandhi University, Kottayam, Kerala, India

OTHER QUALIFICATIONS

Graduate Aptitude Test in Engineering

Qualified GATE with 92 percentile (All India Rank: 286/3292) having a score of 432.

IELTS (Academic)

Achieved overall band score of 6.5 (B2) - Listening: 6.5, Reading: 6.0, Writing: 5.5, Speaking: 7.0.

PROFESSIONAL TRAINING

- ✓ Attended training program on "**Campus to Corporate (CTC)**" by Dale Carnegie Training Institute.
- ✓ Attended Training program on "**Confluence–The Power of We**" by NIMSPL.
- ✓ Passed **Six Sigma Yellow Belt** Training conducted by Q-ultima Consultants.

OTHER TRAINING

- ✓ **Rubber Research Institute of India (RRII)**: has undergone training in Rubber Mixing, Rubber Molding Processes, Latex Dipping Processes and Latex Foam Product Manufacturing, and also received training in Testing and Quality Control of ISNR.
- ✓ **Field Testing Station, Kottayam**: It helps to know about the various testing equipment and testing methods of molded goods and other rubber products.

HOBBIES

Reading, badminton, cycling, swimming and travelling

LANGUAGE PROFICIENCY

English, Hindi, Malayalam, Tamil

AWARDS AND HONORS

President, Society for Polymer Technologists at School of Technology & Applied Sciences, Mahatma Gandhi University, Kerala (2011).

Executive Committee member, Society of Polymer Technologists at Cochin university of Science & Technology, Kerala (2014).

2nd Prize in poster presentation at ELASTOPLAZ 11, National Seminar organized by MIT, Chennai on 4th and 5th march, 2011.

3rd Prize in oral presentation at RAPT 2K15, National Seminar organized by Dept. of Polymer Engineering, Kottayam on 12th and 13th march, 2015.

'B' Certificate holder in National Cadet Cops (NCC), Naval Wing.

FELLOWSHIPS AWARDED

Ph.D. was fully supported by the King Mongkut's University of Technology North Bangkok, Thailand under grant no. **KMUTNB-62-KNOW-001 and KMUTNB-61-PHD-001**.

Prime Ministers Scholarship scheme for the dependent wards of Ex Servicemen pursuing higher technical and professional education in India (selection no: 11460; 2008-2012).

DOCTORAL THESIS TITLE

Harikrishnan Pulikkalparambil, Jyotishkumar Parameswaranpillai, Suchart Siengchin, (2020) Environmental-friendly bioepoxy resin for self-healing application.

ARTICLES

Senthilkumar K, Ungtrakul T, Chandrasekar M, Kumar TSM, Rajini N, Siengchin S, Pulikkalparambil H, Parameswaranpillai J, **Performance of sisal/hemp bio-based epoxy composites under accelerated weathering**, *Journal of Polymers and the Environment*, JOOE-D-20-00405

Pulikkalparambil H, Rangappa SM, Krishnasamy S, Radoor S, Hameed N, Siengchin S, Parameswaranpillai J, (2020) **Accelerated weathering studies of bio-epoxy/ionic liquid blends: influence on physical, thermo-mechanical, morphology and surface properties**, *Mater. Res. Express* 7 (2020) 025302

Varghese SA, Pulikkalparambil H, Rangappa SM, Siengchin S, Parameswaranpillai J, (2020) **Novel biocomposite films based on poly(hydroxybutyrate-co-hydroxyvalerate) and Ceiba Pentandra natural fibers for packaging applications: Thermo-mechanical, surface hydrophilicity, biodegradability, antibacterial and packaging study**, *Materials Today Sustainability*, MTSUS-D-19-00055

Yorseng K, Rangappa SM, Pulikkalparambil H, Siengchin S, Parameswaranpillai J (2019) **Accelerated weathering studies of kenaf/sisal fiber fabric reinforced fully biobased hybrid bioepoxy composites for semi-structural applications: Morphology, thermo-mechanical, water absorption behavior and surface hydrophobicity**, *Construction and Building Materials* 235 (2020) 117464

Yorseng K, Sanjay MR, Tengsuthiwat J, Pulikkalparambil H, Parameswaranpillai J, Siengchin S, Moure MM, (2019) **Information on United States Patents in works related to 'Natural Fibers: 2000-2018**, *Recent Patents on Materials Science (MATS)*, Bentham science, 12(1), 4-76, DOI:10.2174/1874464812666190515115020.

RESEARCH INTERESTS

Smart materials, Biomaterials, Coatings, Automotive lightweight materials, Blends and composites, Self-healing.

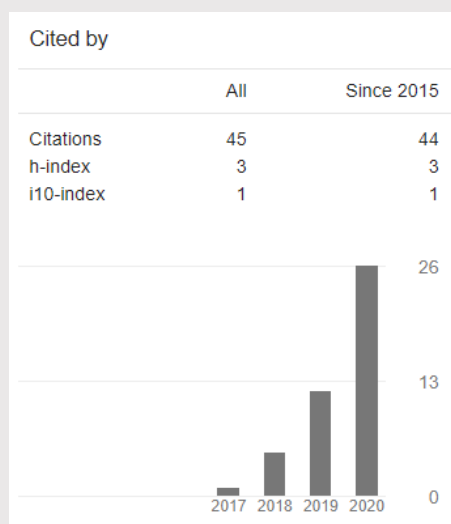
RESEARCH PROJECTS

- o Self-healing epoxy polymers.
- o Automotive lightweight composites
- o Novel natural/synthetic composites
- o Toughened thermoplastic blends & composites for high performance engineering applications.
- o Development of hybrid bionano reinforced biopolymer composites.

RESEARCH SKILLS

Well versed in characterization techniques such as DSC, TGA, DMA, TMA, UTM, FTIR, Rheometer, Nano-intender, Contact angle, SEM etc.

GOOGLE SCHOLAR



Parameswaranpillai J, Pulikkalparambil H, Rangappa SM, Siengchin S, (2019) **Polypropylene/high-density polyethylene-based blends and nanocomposites with improved toughness**, Mater. Res. Express, Article reference: MRX-112802.

Pulikkalparambil H, Varghese S.A, Siengchin S, Parameswaranpillai J, (2019) **Thermally mendable and improved hydrophilic bioepoxy/PEG-PPG-PEG blends for coating application**, Mater. Res. Express 6:025307.

Pulikkalparambil H, Siengchin S, Parameswaranpillai J, (2018) **Corrosion protective self-healing epoxy resin coatings based on inhibitor and polymeric healing agents encapsulated in organic and inorganic micro and nanocontainers**, Nano-Structures & Nano-Objects, 16,381–395

Parameswaranpillai J, Sidhardhan S.K, Pulikkalparambil H, Pionteck J, Siengchin S, Unni A.B, Magueresse A, Grohens Y, Hameed N, Jose S, (2017) **Morphology, thermo-mechanical properties and surface hydrophobicity of nanostructured epoxy thermosets modified with PEO-PPO-PEO triblock copolymer**, Polymer Testing, 59,168-176.

Pulikkalparambil H, Parameswaranpillai J, George J.J, Yorseng K, Siengchin S, (2017) **Physical and thermo-mechanical properties of bionano reinforced poly(butylene adipate-co-terephthalate), hemp/CNF/Ag-NPs composites**. AIMS Materials Science, 4(3), 814-831.

INTERNATIONAL CONFERENCES

Oral Presentation: **Ionic liquid modified epoxy blends, their environmental degradation and autonomous self-healing**, (2020) presented at the 11th International conference on Advances in Polymer Materials, Central Institute of Plastic Engineering and Technology, 13 Feb to 15 Feb, Bangalore, India.

Oral Presentation: **Self-healing epoxy coatings and composites for potential applications**, (2019) presented at the world congress on Smart materials and Structures, Allied academies, 21 Nov to 22 Nov, Singapore.

Poster presentation: **Nano-Composites** (2010), presented at International Conference on Materials Science and Technology - ICMST'10, Indian Institute of Space Science and Technology, IIST, 29 Oct to 1 Nov, Trivandrum, India.

BOOK CHAPTERS

Remanan S, Pulikkalparambil H, Krishnasamy S, Sanjay MR, Siengchin S, Parameswaranpillai J, Das NC, **Sodium Alginate based nanocomposite for wastewater treatment**, In Sodium Alginate base nanomaterial for wastewater treatment, Elsevier (Micro and Nanotechnology).

Senthilkumar K, Pulikkalparambil H, Chandrasekar M, Senthil Muthu Kumar T, Rajini N, Siengchin S, Parameswaranpillai J, Aging **Effects on Fiber-Reinforced Polymers Composites: A review**, In Fiber-Reinforced Polymers: Processes and Applications, Nova Science Publishers, USA.

Senthilkumar K, Siva I, Karthikeyan S, Pulikkalparambil H, Parameswaranpillai J, Sanjay MR, Siengchin S, **Mechanical, X-ray diffraction, Fourier transform infrared spectroscopy, thermal and tribological properties of nanoclay based phenolic composites**, In Phenolic Polymers based Composite Materials,

Remanan S, Pulikkalparambil H, Parameswaranpillai J, Rangappa SM, Siengchin S, NC Das (2020) **Hydrophobic and hydrophilic polymer coatings**. In Polymer Coatings: Technologies and Applications, CRC Press.

REFERENCES

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Senthilkumar K, Pulikkalparambil H, Senthil Muthu Kumar T, Jerold John Britto J, Jyotishkumar P, Suchart Siengchin, Karthikeyan S, Rajini N, (2020) **Free vibration analysis of bamboo fiber-based composites**, In Bamboo Fiber Composites - Processing, Properties and Applications, Springer Nature.

Pulikkalparambil H, Rangappa SM, Siengchin S, Parameswaranpillai J, (2020) **Introduction to epoxy composites**. In Epoxy Composites. Fabrication, Characterization and Applications, Wiley.

Pulikkalparambil H, Rangappa SM, Siengchin S, Khan A, Jawaid M, Pruncu J.I, (2019) **Self-repairing hollow fiber polymer composites**. In Self-Healing Composite Materials, Elsevier.

BOOKS EDITED

Parameswaranpillai J, Salim N, Pulikkalparambil H, Rangappa SM, Siengchin S, (2020) **Micro and nanocontainers for smart applications**, Springer (Under progress).

Parameswaranpillai J, Pulikkalparambil H, Rangappa SM, Siengchin S, (2019) **Epoxy Composites. Fabrication, Characterization and Applications**, Wiley, ISBN 978-3-527-34678-3.



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