

## PATENTS AND PUBLICATIONS

### PATENTS

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1. The formulation for low-temperature vulcanization rubber using glutaraldehyde as a crosslinking agent for bonding materials and surface coatings. Thailand Patent under examination (**2023**).

### INTERNATIONAL JOURNAL

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128. Theerarat Sengsuk, Ekwipoo Kalkornsurapranee, Ponusa Songtipya, Rawiporn Promsung, Arthittaya Chuaybamrung, **Jobish Johns (2023)**, Ladawan Songtipya Enhancing Properties of Thermoplastic Starch/Natural Rubber Blends through the Synergistic Combination of PEG and Modified Natural Rubber. Submitted to *Journal of Polymers and the Environment*.

127. Bote Vaishali Raosaheb, Anand Adeppa, Sudhakara Aralihalli, Ekwipoo Kalkornsurapranee, Akarapong Tuljitrarn, Arthittaya Chuaybamrung, Ravindra Mudigere Kempegowda, **Jobish Johns (2023)**. A Novel Chemical Route for Low-Temperature Curing of Natural Rubber Using 2, 4 Dihydroxybenzaldehyde (DHB): Improved Thermal and Tensile Properties. Submitted to *Journal of Rubber Research*.

126. A. Anand, Bote Vaishali Raosaheb, M.V. Hemantha Kumar, M.P. Sham Aan, K. Ekwipoo, R.S Praveen Kumar, **Jobish Johns (2023)**. Dielectric and AC Conductivity Studies of ZnO and Carbon Black Reinforced Natural Rubber Nanocomposites. Submitted to *Emergent Materials*.

125. Rawiporn Promsung, Arthittaya Chuaybamrung, Antonia Georgopoulou, Frank Clemens, Yeampon Nakaramontri, **Jobish Johns**, Ladawan Songtipya, Ekwipoo Kalkornsurapranee (**2023**). Rapid Formation of Carbon Nanotubes Network in Natural Rubber Films Cured with Glutaraldehyde for Reducing Percolation Threshold Concentration. Submitted to *Iranian Polymer Journal*

124. Rawiporn Promsung, Yeampon Nakaramontri, Claudia Kummerlöwe, **Jobish Johns**, Norbert Vennemann, Ekwipoo Kalkornsurapranee (**2023**). Synergistic effects of sulfur and glutaraldehyde curing on mechanical properties, thermal stability and relaxation behavior of natural rubber latex vulcanizates. Submitted to *Polymer*.

123. Akarapong Tuljitrarn, Supakit Yonphan, Wuttichai Chaiphaksa, Jakrapong Kaewkhao, Suchart Kothan, Nuttawadee Intachai, Siriprapa Kaewjaeng, **Jobish Johns**, Ekwipoo Kalkornsurapranee (**2023**). Developing Effective Radiation Shielding Materials: Thermoplastic Natural Rubber Composites with Antimony Oxide. *Polymers for Advanced Technologies*. <https://doi.org/10.1002/pat.6181> (**Q2 Ranked**)

122. Bote Vaishali Raosaheb, Sudhakara Aralihalli, Ekwipoo Kalkornsurapranee, Akarapong Tuljitrarn, Arthittaya Chuaybamrung, K.S Krishna Kumar, **Jobish Johns (2023)**. Synergistic effects of 2, 4 dihydroxybenzaldehyde and carbon black nanoparticles on the properties of natural rubber. *Emergent Materials*. <https://doi.org/10.1007/s42247-023-00528-6-y>. (**Q2 Ranked**)

121. CJ Binish, AV Vijayasankar, **Jobish Johns (2023)**. Synergetic effects of cross-linking and incorporation of Fe-Al bimetallic combination on the properties of Polyvinyl alcohol Novel films. *Emergent Materials*. <https://doi.org/10.1007/s42247-023-00506-y>. **(Q2 Ranked)**
120. Suradet Matchawet, **Jobish Johns**, Jutatip Artchompoo, Kwanruethai Boonsong, Uraiwan Sukyung **(2023)** Improving the performance of wood adhesive with waste rubber tyres. *Tends in Sciences*. Vol. 20, No. 9: 6826 <https://doi.org/10.48048/tis.2023.6826> **(Q3 Ranked)**
119. Bhavyashree Shetty, Yashodha, **Jobish Johns (2023)**. A Green approach to the removal of Malachite Green dye from aqueous medium using chitosan/cellulose blend. *Fibers and Polymers* Vol. 24, No. 4, 1297-1307 <https://doi.org/10.1007/s12221-023-00134-7> **(Q2 Ranked)**
118. Pitchapa Pittayavinai, Weerachart Tangchirapat, **Jobish Johns**, Yeampon Nakaramontri **(2023)**. Flexible canvas produced from uncured-natural rubber composites filled with high calcium oxide fly ash/cement hybrid filler. *Construction and Building Materials* Vol.17, No.1 69–89 <https://doi.org/10.1016/j.conbuildmat.2023.130438> **(Q1 Ranked)**
117. Sanjay V, Rajashekara KM, **Jobish Johns**, Vinayak Pattar **(2023)**. The dielectric and impedance spectroscopy of poly vinyl alcohol doped with carbon (PVA-C). *Physica B: Condensed Matter* <https://doi.org/10.1016/j.physb.2022.414561> **(Q2 Ranked)**
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115. Pornsiri Toh-ae, Prachid Saramolee, Siriluk Chiarakorn, Dujduan Warahozhmayev, Attapol Kamthong, Raymond Lee Nip, Ekwipoo Kalkornsurapranee, **Jobish Johns**, Patcharapit Promoppatum, Yeampon Nakaramontri **(2022)**. Enhanced photocatalysis of natural rubber foams filters boosted by modified-titanium oxide hybrid fillers: Gaseous benzene removal, antibacterial properties and air permeability. *Express Polymer Letters*, <https://doi.org/10.3144/expresspolymlett.2022.90> **(Q1 Ranked)**
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111. Madhushri AV, NV Raju and **Jobish Johns**, (2022) Effect of Compatibilizer on the Properties of Areca-fiber Reinforced Polypropylene Composites. *Journal of Natural Fibers*. <https://doi.org/10.1080/15440478.2022.2121354> (Q1 Ranked)
110. Ekwipoo Kalkornsuraanee, Sirilak Intom, Nusaana Lehman, **Jobish Johns**, Suchart Kothan, Karnda Sengloyluan, Wuttichai Chaiphaksa and Jakrapong Kaewkhao, (2022), Mechanical and Gamma Radiation Shielding Properties of Natural Rubber Composites: Effects of Bismuth Oxide (Bi<sub>2</sub>O<sub>3</sub>) and Lead Oxide (PbO). *Materials Research Innovations*. <https://doi.org/10.1080/14328917.2020.1853383> (Q3 Ranked)
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101. Ladawan Songtipya, Ponusa Songtipya, Ekwipoo Kalkornsurapranee, Theerarat Sengsuk, Yeampon Nakaramontri, **Jobish Johns (2021)**. Improved Adhesion Properties of Natural Rubber-Based Pressure-Sensitive Adhesives by Incorporating Particulate Fillers. *Composite communications*. <https://doi.org/10.1016/j.coco.2021.100880>. **(Q1 Ranked)**
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48. **Jobish Johns** and Vijayalakshmi Rao (2009) Thermal Stability, Morphology And X-Ray Diffraction Studies Of Dynamically Vulcanized Natural Rubber/Chitosan Blends. *Journal of Materials Science*, Vol. 44, pp. 4087–4094. **(Q1 Ranked)**
47. **Jobish Johns** and Vijayalakshmi Rao (2009) Mechanical properties and the swelling behavior of Crosslinked natural rubber/chitosan blends. *International Journal of Polymer Anal. Charact.*, Vol.14, pp. 508–526. **(Q2 Ranked)**
46. **Jobish Johns** and Vijayalakshmi Rao (2008) Characterization of Natural Rubber Latex/Chitosan Blends, *International Journal of Polymer Anal. Charact.*, Vol.13, pp. 280–291. **(Q2 Ranked)**
45. Vijayalakshmi Rao and **Jobish Johns** (2008) Thermal behavior of Chitosan/Natural rubber latex blends: Thermogravimetric and differential scanning calorimetric analysis. *Journal of Thermal Analysis and Calorimetry*, Vol. 92, pp. 801–806. **(Q3 Ranked)**
44. Vijayalakshmi Rao and **Jobish Johns** (2007) Mechanical properties of thermoplastic elastomeric blends of Chitosan and natural rubber latex. *Journal of Applied Polymer Science*. Vol. 107, pp. 2217–2223. **(Q2 Ranked)**

**Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=23485535800>

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**Google Scholar:** <https://scholar.google.com/citations?user=rQYZsqIAAAAJ>

**Research Gate:** [https://www.researchgate.net/profile/Dr\\_Jobish\\_Johns/stats](https://www.researchgate.net/profile/Dr_Jobish_Johns/stats)

**Web of Science Researcher ID:** AAE-2773-2019

**Total citations: 851**

**h-index: 17 i-10 index: 23**

## **BOOKS**

43. Apinya Krainoi, **Jobish Johns**, Ekwipoo Karnkornsrapanee, Yeampon Nakaramontri. Chapter on Carbon Nanotubes Reinforced Natural Rubber Composites (Book Title: Carbon Nanotubes-Redefining the World of Electronics) ISBN 978-1-83881-185-3. IntechOpen Publishers (2021).
42. **Jobish Johns**, Vijayakumar PC. Chitosan Based Elastomeric Blends: Dielectric and Dye Adsorption Properties. ISBN: 978-620-0-55641-5. Lambert Academic Publishers (2020).
41. Manjula R, **Jobish Johns**. An Introduction to Coir Fiber: Chemical Modification and its Polymer Composites. ISBN: 978-620-0-32699-7. Lambert Academic Publishers (2019).
40. Praveena Kumar RS, **Jobish Johns**. Super Elastomers Based on Natural Rubber, ISBN: 978-6-200-24043-9. Lambert Academic Publishers (2019).
39. Vijayakumar PC, **Jobish Johns**. Novel Thermoplastic Elastomeric Blends of Polystyrene, ISBN: 978-3-659-59677-3. Lambert Academic Publishers (2015).
38. Shankar Ananda JH, **Jobish Johns**. Electrical Properties of Conducting Polymer Composites, ISBN: 978-3-659-63750-6. Lambert Academic Publishers (2014).
37. **Jobish Johns**. Vulcanization of Rubber Using Glutaraldehyde, ISBN: 978-3-659-43791-5. Lambert Academic Publishers (2013).
36. **Jobish Johns**. Eco-Friendly Chitosan/Natural Rubber Blends: Preparation, Development and Characterization, ISBN: 978-3-8443-2118-0. Lambert Academic Publishers (2011).
35. Vijayalakshmi Rao and **Jobish Johns**. Rubber: Types, Properties and Uses (Chapter 7. Natural rubber latex/chitosan blends pp. 337-376) ISBN: 978-1-61761-652-5. Nova Publishers (2010).

## **CONFERENCE PRESENTATIONS**

34. Paper presented on 'Computer simulation of electrochemical studies of Al<sub>6</sub>O<sub>6</sub>-Al<sub>2</sub>O<sub>3</sub> Metal Matrix Composite: Effect of Heat Treatment', International Conference on computational engineering and material science (ICCEMS 2020) at GM Institute of Technology, Davangere, Karnataka, India (**July 2020**).

33. Paper presented on 'Poly (lactic acid)-based Composites Incorporated with Spent Coffee Ground and Tea Leave for Food Packaging Application: A Waste to Wealth Approach', International Union of Materials Research Societies International Conference in Asia (IUMRS-ICA 2018) at Bali, Indonesia **(NOV 2018)**.
32. Paper presented on 'Shape Memory Thermoplastic Natural Rubber for Forensic Applications', International Union of Materials Research Societies International Conference in Asia (IUMRS-ICA 2018) at Bali, Indonesia **(NOV 2018)**.
31. Paper presented on 'Enhancing properties of cured NR/PVA blends using Glutaraldehyde as a Crosslinking Agent: Effect of Nano-Clay Loading', International Union of Materials Research Societies International Conference in Asia (IUMRS-ICA 2018) at Bali, Indonesia **(NOV 2018)**.
30. Paper presented on 'Effect of processing parameters on the vulcanization using glutaraldehyde'. International Conference on Innovations and challenges in Science and Technology (ICICST-2018) at Department of Physics, DBIT, Bangalore **(May 2018)**.
29. Paper presented on 'Electrical properties of super elastomers for flexible electronics. International Conference on Innovations and challenges in Science and Technology (ICICST-2018) at Department of Physics, DBIT, Bangalore **(May 2018)**.
28. Paper presented on 'Optimization of glutaraldehyde vulcanization system'. International Conference on Innovations and challenges in Science and Technology (ICICST-2018) at Department of Physics, DBIT, Bangalore **(May 2018)**.
27. Paper presented on 'Effect of processing parameters on the vulcanization using glutaraldehyde'. National Conference on Current Applications in Material Science (ICASE-2017) at Department of Physics, SJBIT, Bangalore **(May 2018)**.
26. Paper presented on 'Optimization of glutaraldehyde vulcanization system'. National Conference on Current Applications in Material Science (ICASE-2017) at Department of Physics, SJBIT, Bangalore **(May 2018)**.
25. Paper presented on 'Electrical properties of super elastomers for flexible electronics'. National Conference on Current Applications in Material Science (ICASE-2017) at Department of Physics, SJBIT, Bangalore **(May 2018)**.
24. Paper presented on 'Thermogravimetric and Swelling Studies on Natural Rubber based super elastomers. International Conference on Advances in Science and Engineering (ICASE-2017) at Regent's International College, Bangkok, Thailand **(Jan 2017)**.
23. Paper presented on "Ab Initio study on cyanide complexes involving hydrogen bonds". National Conference on Recent Advances in Applied Sciences (RAAS-2016) at AMC Engineering College, Bangalore **(April 2016)**.
22. Paper presented on "Solvent transport properties of nano-composites based on natural rubber/polyvinyl alcohol fully-interpenetrating polymer networks". International Conference on **Nano Technology** – 2016 (ICNano 2016) at Department of

- Nanotechnology, Center for Post Graduate Studies, Visvesvaraya Technological University, Bengaluru Region, Muddenahalli, Chikkaballapur District (**April 2016**).
21. Paper presented on “Carbon Black Reinforced Natural Rubber/Polyvinyl Alcohol Fully-Interpenetrating Polymer Networks”. Second Indo-Canadian **Symposium on Nano Science & Technology** – 2016 (ICSNST'16) at NIE, Mysore (**February 2016**).
20. Paper presented on “Methylene blue adsorption on Poly(isoprene)/Chitosan blends”. International Conference on Materials Science and Ionizing Radiation safety and awareness (ICMSIRSA-16) at Department of Physics, Shivaji University, Kolhapur (**January 2016**).
19. Paper presented on “Nano-composites based on natural rubber/polyvinyl alcohol fully-interpenetrating polymer networks”. National Conference on Emerging Research Trends in Chemistry (NCERTC 2016) at Payannur College, Payannur, Kerala (**January 2016**).
18. Paper presented on “optimization study of ammonia and glutaraldehyde contents on vulcanization of natural rubber latex”. National Conference on Emerging Research Trends in Chemistry (NCERTC 2016) at Payannur College, Payannur, Kerala (**January 2016**).
17. Paper presented on “Elastomeric Blends of Natural Rubber and the Resin Exudated from Ailanthus Malabaricum Tree”. International Conference on Direct Digital Manufacturing and Polymers (ICDDMAP 2015) held in Karnatak University, Dharwad, India in **October 2015**.
16. Paper presented on “Effect of Lignin on Aging and Thermal Properties of Natural Rubber”. THE SECOND ASIA PACIFIC RUBBER CONFERENCE (APRC 2015) held in Prince of Songkla University, Suratthani Campus, Thailand in **October 2015**.
15. Paper presented on “Fully Interpenetrating Polymer Network from Natural Rubber and Guar Gum for the preparation of Nano-composites”. Recent Aspirants of Nanomaterials and its Applications, National Seminar, held in Department of Physics, SJC Institute of Technology, Chikballapura, Karnataka in **July 2015**.
14. Paper presented on “Morphology and tensile properties of the blends of polystyrene and exudated resin”. Recent Developments in Physics, National Seminar, held in Sri Krishnadevaraya University, Anathpur, AP in **March 2015**.
13. Paper presented on “Sorptions Behavior of the Blends Developed from Exudated Resin and Polystyrene”. Recent Developments in Physics, National Seminar, held in Sri Krishnadevaraya University, Anathpur, AP in **March 2015**.
12. Paper presented and **awarded the best paper** on “Grafting of Maleic Anhydride and Amine Derivative onto Natural Rubber for High Performance Elastomeric Applications” in the ‘International conference on Plastics, Rubber and composites 2014’ at Langkawi, Malaysia (**June 2014**).
11. Delivered an invited talk on “Vulcanization of rubber by electron beam irradiation” in the national seminar ‘Facets of Nuclear Radiations-2014’ at Payannur College, Payannur, Kerala (**Feb 2014**).

10. Paper presented on “Solvent transport properties of ER/PS thermoplastic elastomeric blends” in the international conference Nano, Bio and Material Sciences (ICONBMS) at Department of Physics, Nizam College, Osmania University, Hyderabad, AP (**Jan 2014**).
9. Paper presented on “Electrical properties of Natural Rubber/Chitosan Blend” in the national conference on Multifunctional Engineering Materials (NCMEM-2013) at RV College of Engineering, Bangalore (**Nov 2013**)
8. Paper presented on “Mechanical and Thermal Properties of Natural Rubber/PVA based IPNs” in the national conference on Multifunctional Engineering Materials (NCMEM-2013) at RV College of Engineering, Bangalore (**Nov 2013**)
7. Paper presented on “Solvent Transport Properties of ER/PS Thermoplastic Elastomeric Blends” in the national conference on Multifunctional Engineering Materials (NCMEM-2013) at RV College of Engineering, Bangalore (**Nov 2013**)
6. Paper presented on “High Performance Fully Interpenetrating Polymer Networks for Elastomeric Applications” in the Workshop on Recent Advances in Material Science-2013’ at Department of Chemistry, Payyanur College, Payyanur, Kerala (**June 2013**).
5. Paper presented on “A New Method to Vulcanize Natural Rubber by Using Glutaraldehyde” in the International Conference ICRAMST-13, at Department of Chemistry, National Institute of Technology Surathkal (**January 2013**).
4. Paper presented on “Fully interpenetrating polymer networks based on poly (isoprene)/poly (vinyl alcohol)”. Emerging Trends in Soft Materials-2012, National Seminar, held in Sri Krishnadevaraya University, Anathpur, AP in **November 2012**.
3. Paper presented on “Thermal Degradation Behavior of Maleic Anhydride Modified Natural Rubber/Chitosan Blends”. POLYMCON '09 International Symposium, held in National Institute of technology Calicut, Kerala, India in **January 2009** (PP. 266)
2. Paper presented on “Compatibilising effect of maleic anhydride on the mechanical properties of natural rubber/chitosan blends”. 2<sup>nd</sup> DAE-BRNS International Symposium, held in Bhabha Atomic Research Centre, Trombay, Mumbai, India in **December 2008** (PP. 420)
1. Paper presented on “Swelling behavior of cross-linked Natural rubber/ Chitosan blends”. POLYMSYM '08 national symposium, held in National Institute of Technology Calicut, Kerala, India in **April 2008** (PP. 37)

## **REVIEWER OF JOURNALS**

1. European Polymer Journal (Elsevier)
2. Arabian Journal of Chemistry (Elsevier)
3. Chemical Engineering and Processing - Process Intensification (Elsevier)
4. Food and Humanity (Elsevier)
5. Industrial Crops and Products (Elsevier)

6. International Journal of Adhesion and Adhesives (Elsevier)
7. International Journal of Fatigue (Elsevier)
8. Materials Today: Proceedings (Elsevier)
9. Materials Chemistry & Physics (Elsevier)
10. Cellulose
11. Journal of Applied Polymer Science
12. Applied Sciences
13. Polímeros
14. Iranian Polymer Journal
15. Materials Research Express
16. Materials
17. Polymer
18. Journal of Natural Fibers
19. Recent Progress in Materials

#### **RESEARCH PROJECTS**

1. **VTU TEQIP Funded Project for Rs1,50,000/-** on 'Utilization of Pineapple leaf waste as an alternative to plastic in packaging industry: A waste to wealth approach' (Date of approval: 10-12-2019).
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