

CURRICULUM VITAE

Personal Particulars

Name: Zulkifli Ahmad

Current designation: Professor

Department: School of Material and Mineral Resources Engineering

Organization: Universiti Sains Malaysia

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Nationality: Malaysia



Qualifications

Academic qualifications: PhD in Polymer Chemistry (Reading, UK)

Professional qualifications: Member, Royal Chemical Society (2014 – present)

Area of expertise: Polymer Synthesis, Polymer in Electronics

Google Scholar Citation: 2937

H-index: 26

i10-index: 79

Graduated students

PhD – 8

MSc - 8

Research Grant:

1. Synthesis of polyimide of low dielectric constant, FRGS (August 2006 – August 2009)
2. Development of Non-yellowing Polyurethane foam TechnoFund (April 2009 – March 2011)
3. Cure kinetics, miscibility, and processing of allylic and epoxy monomers in plasticizer polyimide, FRGS (1/7/14 – 31/6/16)
4. Fabrication of Stretchable Organic Transistor, Bridging Fund, USM (15/08/2018-14/08/2019)
5. A Study on Stress and reliability of Advanced Interconnection Materials for Flexible Hybrid Electronics Application, RUI (1/06/2018-31/05/2021)
6. Fabrication of Stretchable Electronics device, (15/10/2017-28/02/2018)
7. Improved dielectric constant of Polyimide-BaTiO₃ composite using coupling agent modification, Aun/Seed-Net, Japan, 03/01/2015 - 02/07/2017
8. Fabrication of Low Dielectric Constant Films Hyperbranched Polyimide Copolymer Containing S-triazine Moieties via Conventional Approach for Optoelectronic Application, Short Term, USM (15/09/2017-14/09/2019)
9. Design of crosslink network for improvement of thermal conductivity in Interface Material, FRGS (01/08/2016-31/01/2019)

10. Integrated Polymeric Optical Waveguide in Packaging , CREST, (01/11/2015-30/06/2018)
11. Alternative Solution of Stretchable Printed Electronics in Manufacturing of Automotive Lighting , CREST, (01/10/2015-31/03/2018)
11. Fabrication of stretchable electronic device, ACU Titular Fellowship, UK, 15/10/2017 - 28/02/2018

Industry Engagement

1. Development of cycloaliphatic epoxy monomer for LED encapsulant, Penchem Industries Sdn. Bhd, Permatang Tinggi Industrial Estate, Penang, RM25,500.00 , March – August 2008,
2. Production of non-yellowing Polyurethane non-yellowing foam, ECOVET BINA Sdn Bhd – 3 Jun 2009,
3. Development of UV cure Polysiloxane, Penchem Technologies Sdn. Bhd, Feb RM24,000.00, May 2012 – August 2012
4. Scale up production of polysiloxane for LED Encapsulant, Penchem Technologies Sdn. Bhd, 16 Aug 2011 (48 months)
5. Development of stretchable conductive ink with Jabil Circuit Sdn Bhd – April 2015 – June 2016
6. Fabrication of contact rubber membrane based on silicon/silver conductive ink, Goldenetna Sdn Bhd, Kawasan Perusahaan Mak Mandin, Penang, 5/6/2020 - 5/8/2020
7. Design and development of stretchable antenna, Jabil Circuit Sdn Bhd, Penang, Aug 2020 - Dec 2021

Publications (selected)

1. Nicholas Ang Soon Ming, Muhammad Bisyrul Hafi Othman, Hazizan Md Akil, Zulkifli Ahmad Dielectric Constant Dependence on Fluorine Content and Porosity of Polyimides, *Journal of Applied Polymer Science*, Volume 121, Issue 6, pages 3192–3200, 15 September 2011
2. Bisyrul Hafi, Mohamad Riduwan Ramli, Looi Yien Tyng Zulkifli Ahmad and Hazizan Md Akil, Dielectric constant and refractive index of poly(siloxane-imide) block copolymer, *Journal Material and Design* , *Materials and Design* 32 (2011), pp. 3173-3182.
3. Asliza Alias, Z. Ahmad, A.B. Ismail, Preparation of polyimide/Al₂O₃ composite films as improved solid dielectrics. *Materials Science and Engineering: B*, Volume 176, Issue 10, 15 June 2011, Pages 799-804
4. Muhd. Riduwan, Muhd Bisyrul Hafi Othman, Azlan Arifin, Zulkifli; Cross-link Network of Polydimethylsiloxane via Addition and Condensation (RTV) Mechanisms. Part I: Synthesis and Thermal Properties, *Polymer Degradation and Stability* 96 (2011), pp. 2064-2070
5. PM Chou, M Mariatti, S Sreekantan, A Zulkifli, Evaluation of flexural properties and bioactivity of bioresorbables PLLA/PBSL/CNT and PLLA/PBSL/TiO₂ nanocomposites. *Composite Pt B* (2011), 43 (3) , pp. 1374-1381

6. Bisyrul Hafi, Rafiza Ramli, Hazizan Md Akil, Zulkifli Ahmad, Thermal properties of polyimide system containing silicone segment *Journal of Thermal Analysis and Calorimetry*, (2012), vol109(3), 1515 – 1523
7. SG Tan, Z Ahmad, WS Chow, Interpenetrating polymer network structured thermosets prepared from epoxidized soybean oil/diglycidyl ether of bisphenol A, *Polymer International* 63 (2), 273-279,2013
8. Siti Nurfatimah Yahya, Chua Kai Lin, Mohamad Riduwan Ramli, Mariatti Jaafar and Zulkifli Ahmad, Effect of cross-link density on optoelectronic properties of thermally cured 1,2-epoxy-5-hexene incorporated polysiloxane, *Material and Design*,(3013),vol 47, 416-423
9. Looi Yien Tyng,a Mohamad Riduwan Ramli,a Muhammad Bisyrul Hafi Othman, Rafiza Ramli, Zainal ArifinMohd Ishaka, and Zulkifli Ahmad, Effect of crosslink density on the refractive index of a polysiloxane network based on 2,4,6,8-tetramethyl-2,4,6,8-tetravinylcyclotetrasiloxane, *Polymer International*, 2013; 62: 382–389
10. Norhuda Hidayah Nordin; Mohamad Riduwan Ramli; Nadras Othman; Zulkifli Ahmad, Synthesis and thermal stability of crosslinked carbazole-substituted poly(dimethylsiloxane) for LED encapsulant, *Polymers and Polymer Composites*,22(7), 2014, 625-632
11. Muhammad Bisyrul Hafi Othman, Hazizan Md Akil,Zulkifli Ahmad Synthesis, Characterisation and Thermal Properties Hyperbranched Polyimide Derived from Melamine via Emulsion Polymerisation, *Journal of Thermal Analysis and Calorimetry*, 2014.
12. NH Nordin, MR Ramli, N Othman, Z Ahmad, Synthesis of carbazole-substituted poly (dimethylsiloxane) and its improved refractive index, *Journal of Applied Polymer Science*, (2015), 132(11 DOI: 10.1002/app.41654
13. F Ullah, MBH Othman, F Javed, HM Akil*, and Z Ahmad, Classification, Processing and Application of Hydrogels: A Review, *Materials Science Engineering C.57()*, 414-433, DOI:10.1016/j.msec.2015.07.053
14. MBH Othman, Z Ahmad, H Osman, MF Omar & HM Akil*, “Thermal Degradation Behavior of Flame Retardant Melamine Derivative Hyperbranch Polyimide with Different Terminal Groups” *RSC Advance*, 2015, 5(12)92664 – 92676. DOI: 10.1039/C5RA12923K
15. MBH Othman, HM Akil, H Osman, A Khan, Z Ahmad, Synthesis, characterisation and thermal properties of hyperbranched polyimide derived from melamine via emulsion polymerisation, *Journal of Thermal Analysis and Calorimetry* (2015), 120 (3), 1785-1798
16. MR Ramli, R Ramli, K Mohamed, Z Ahmad, Synthesis and fidelity study of ultraviolet-curable hydrogen silsesquioxane analogue as an elastomeric stamp, *RSC Advances* 6 (84), 81364-81371, (2016)
17. MR Ramli, Z Ahmad, & K Mohamed, Synthesis of Epoxidised Silsesquioxane Polymer as Negative Photoresist in Photolithography Application, *Applied Mechanics and Materials*, (2016)754-755, p. 502-507.
18. TC Loh, CM Ng, RN Kumar, H Ismail, Z Ahmad, Improvement of thermal ageing and transparency of methacrylate based poly (siloxane–silsesquioxane) for optoelectronic application, *Journal of Applied Polymer Science*, 2017, 134 (37)

19. MR Ramli, R Ramli, K Mohamed & Z Ahmad, Thermal and lithographic performance of silsesquioxane with cycloaliphatic epoxy-siloxane hybrid spacer for soft lithography, *Macromolecular Materials and Engineering*, (2017) 303, p.1700371.
20. A.A. Norhidayah, A.A. Saad, M.F.M. Sharif, F.C. Ani, M.Y.T. Ali, M.S. Ibrahim, Z. Ahmad Stress Analysis of a Stretchable Electronic Circuit, *Procedia Engineering* 184 (2017) 625 – 630
21. M Lay, S Meng, MR Ramli, Z Ahmad, H Ismail, TS Huat, M Todo Interphase volume calculation of polyimide/TiO₂ nanofibers nanocomposite based on dielectric constant model and its effect on glass transition, (2018), *Journal of Materials Science: Materials in Electronics*, 2019, 29 (24), 20742-20749
22. M Lay, MR Ramli, R Ramli, NC Mang, Z Ahmad, Crosslink network and phenyl content on the optical, hardness, and thermal aging of PDMS LED encapsulant, *Journal of Applied Polymer Science*, 2019, 47895
23. Mohamad Riduwan Ramli, Salehin Ibrahim, Zulkifli Ahmad, Intan Sorfina Zainal Abidin, Mohd Fadzil Ain, Stretchable conductive ink based on polysiloxane-silver composite and its application for a frequency reconfigurable patch antenna for wearable electronics, *ACS Applied Material and Interfaces* – (2019) 11, 31, 28033-28042
24. Mohd Ibrahim, N F, Ramli M R, Rusli A, Abd Rahman M K, Ahmad Z, Surface roughness effect on optical loss in waveguide using isotropically induced crosslink siloxane-polyimide copolymer, *Journal of Applied Polymer Science*, 2020, <https://doi.org/10.1002/app.49554>
25. Mimi Syahira Masraff, Amir Muhammad Noh Amin Abdul Rahman, Mohd Riduwan Ramli, Mohamad Kamarol Mohd Jamil, Mohd Khalil Abdullah, Zulkifli Ahmad, Alignment of silver nanoparticles in polysiloxane crosslink network under direct electric field, *Composite Science and Technology*, (2021), 203, 108611

Books/Monograph

1. Zulkifli Ahmad, Synthetic and structural studies of high performance polymer, Monograph, LAP Lambert Academic Publishing GmbH & Co., (2011) ISBN 978-3-8443-2385-6
2. Zulkifli Ahmad, Polyamide Imide, Book Chapter, Handbook of Engineering and Specialty Thermoplastic (Nylon), (2011), Editor Sabu Thomas and P.M.Visakh, Wiley & Scrivener Publishing Company, ISBN 978-0-470-63925-2
3. Zulkifli Ahmad and Muhd Bisyrul Hafi Othman, Synthesis and Structure Properties Relationship, Monograph, LAP Lambert Academic Publishing GmbH & Co., (2011) ISBN 9783846546451
4. Zulkifli Ahmad, High Refractive Index Silicone, Book Editor(s): Atul Tiwari Mark and D. Soucek
Concise Encyclopedia of High Performance Silicones, 2014, Scrivener Publishing LLC.
5. Zulkifli Ahmad, Polymer Dielectric Material, Book Chapter Dielectric Material, InTech –open, ISBN 979-953-307-1016-8

Award and Recognition

1. Invited Researcher, Ho Chin Minh Universiti, Vietnam, Aun/Seed-Net Program, 26 – 29 Mac 2008
2. Invited Researcher, Mahatma Gandhi University, Kottayam, Kerala, India, 23 – 25 March, Kottayam, Kerala, India.
3. Invited Participant, 3rd AUN-Seed Net Regional Conference on material Engineering, 2 – 3 Feb 2011, Universiti Gadjah Mada, Indonesia
4. Invited Speaker – 3rd International Multicomponent Polymer (IMPC), Kerala India 23 – 25 March 2012
5. Invited Session Chair, 3rd International Multicomponent Polymer (IMPC), 23 – 25 March 2012, Kerala India
6. Invited Speaker – How to write a scientific journal paper, Penchem Industries Technologies Sdn Bhd, 7 August 2012.
7. Invited Speaker – Nanoscience & Technology 2012, Qingdao, China, 26 – 28 Oct 2012
8. Invited Speaker, Collaborative Conference on Material Research 2014, Incheon/Seoul, South Korea. 23 -27 June 2014
9. Invited Session Chair, Collaborative Conference on Material Research 2014, 23 -27 June 2014, Incheon/Seoul, South Korea
10. Invited Speaker, EMN Meeting on Optoelectronics, 24 – 27 April 2015, Beijing China.
11. Invited Speaker, Collaborative Conference on Material Research 2015(CC3DMR), Busan/Seoul, South Korea. 15 - 19 June 2015
12. Invited Speaker, International Symposium for Advanced Material Research (ISAMR 2015), Taiwan, Aug 16 – Aug 20 2015
13. Invited Speaker, International Symposium on Advanced Polymeric Materials 2016, 16 – 18 May 2016, Kuala Lumpur.
14. Invited Speaker, Stretchable Conductive Ink based on Polysiloxane Curing Syatem, Advances in Civil, Environmental and material research (ACEM16), 28 Aug – 1 Sept 2016 Jeju Korea.
15. Invited Speaker, 7th Internatinal Advances in Applied Physics and Material Science and Congress and Exhibition, 22 – 27 April 2017, Mugla Turkey.
16. Key Note Speaker, Polymer Synthesis in Engineering, 3rd International Sciences, Technology, and Engineering Conference (ISTEC 2018), 17 – 18 April 2018
17. Keynote Speaker, International Summit on Nanomaterials, Laser, Optics nanotechnology, 21 – 22 November 2019, Univesity Malaya, Kuala Lumpur, Malaysia
18. Keynote Speaker, World Congress on Polymer Science and Technology (WCPST-2020), May 14-15, 2020, Rome, Italy
19. Visiting Lecturer, School of Metallurgy and Material, University of Birmingham, Edgbaston, Birmingham, UK. Dec 2012 – Aug 2013.
20. Book Reviewer, Cellulose-based Superabsorbent Hydrogels by Ibrahim Mondal (Editor), Elsevier, Oct 2017
21. Visiting Lecturer, Swansea Fullerton Fellowship, Association of Commonwealth Universities (ACU), United Kingdom , Oct 2017 –Dec 2017
22. External Examminer, PhD Viva Voce, University of South Australia, 11 July 2019 (International)
23. Best Service Award, School of Material and Mineral Resources, USM, 2016
24. Programme Chairman, Polymer Engineering, School of Material and Mineral Resources, Universiti Sains Malaysia, 2016 - 2018

25. Advisor, The 19th Asian Workshop on Polymer Processing, Langkawi, Malaysia, 25 – 28 Oct 2020
26. Reviewer Certificate, Journal of Applied Polymer Science, 2018
27. Scientist Award, International Association of Advance Material (IAAM), Sweden, Nov 2020.
28. Top Research Scientist Malaysia (TRSM), Academy of Science Malaysia, Dec 2020

Intellectual Property

1. Copyright LY2019004753 - Ku Marsilla Binti Ku Ishak, Hazizan Bin Md Akil, Zulkifli Bin Ahmad, Fishy Bioplastic
2. Copyright LY2018004324 - Badrul Hisham Bin Yahaya, Mariatti Binti Jaafar @ Mustapha, Zulkifli Bin Ahmad, Zuratul Ain Binti Abdul Hamid, Bioactive Molecules Conjugated Poly (lactic acid) Microspheres, , 20/09/2018
3. Copyright - LY2018004323 - Zulkifli Bin Ahmad, Zuratul Ain Binti Abdul Hamid, Hydrophilic Surface Poly (lactic acid) Microspheres, , 20/09/2018
4. Copyright - Zulkifli Bin Ahmad, Khairudin Bin Mohamed, Mohamad Riduwan Bin Ramli, Rafizah Ramli, Silsesquioxane with Cycloaliphatic Epoxy-Siloxane Hybrid Spacer for Soft Lithography, , 13/09/2019

Reviewer/Editorial Board

1. Editorial Board Member, OAJRC Applied Physics, UK (2019 -)