MINH CANH VU

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PERSONAL STATEMENT

- A dedicated, thorough and fast-learning person with a broad and acute interest in the discorvery of novel nanomaterials.
- Apsires to work as a post-dotoral researcher on thermal managment materials, electromagnetic shieling interference, energy storage, stretchable and self-healeble polymer composites, additive manufacturing.
- Demonstrates strong organisational skills and the competence to meet deadlines. Displays a positive outlook to all challenges and able to work independently.

EDUCATION

Korea National University of Transportation, **Republic of Korea**

PhD in Polymer Science and Engineering **August 2020**

- Advisor: Prof. Sung-Ryong Kim
- Dissertation: *Graphene luoride for thermoconductive nanocomposites*.

Master in Polymer Science and Engineering **August 2017**

- Thesis: *Study on the thermally conductive pressure-sensitive adhesives composites based on graphene filler*.

Industrial University of HoChiMinh City, **Viet Nam**

Bachelor in Chemical Engineering **August 2014**

- Thesis: *Green synthesis of lubricant oil from oleic acid.*
- Advisor: Prof. Nguyen Thi Thanh Huong

RESEARCH EXPERIENCE

PhD Researcher **August 2017 – present**

- Synthesis and characterization of the stretchable, self-healable polyurethane.
- Preparation of binary fillers of liquid metal particles and silver nanowires for thermoconductive, stretchable, self-healable polyurethane composites.
- Preparation of Aramid nanofibers (Kevlar fiber) and its hybrid with 1D and/or 2D materials (carbon nanotubes, boron nitride nanosheets, graphene derivatives sheets) for high-performance of highly thermal conductivity, excellent flame retardant and electromagnetic shielding interference materials.
- Preparation and characterization of graphene sheets based polyimide aerofoam for highly thermoconductive and flame retardancy and electromagnetic shielding effective composites.
- Fabrication of multilayered boron nitride coated iron foil.
- Fabrication and characterization of 3D structure of boron nitride sheets scaffold, boron nitride nanotubes sponges.
- Synthesis and characterization of 3D structure of covalently bonded silicon carbide scaffold for highly thermoconductive epoxy composites as thermal interfacial materials (2 published papers).
- Fabrication and characterization of graphene fluoride sheets for highly thermoconductive yet electro-insulating hybrid films as heat spreader in wearable electronic devices (2 published papers).
- Development of dry adhesives based on structural surface of PDMS for medical application (1 published paper).
- Apply 3D printing technology (directed inkjet, FDM) for preparation of thermoconductive polymer composites.
- Assisted supervisor in preparation of 3 novel research proposals on 3 different topics:
  - Development of highly thermal conductive pressure-sensitive adhesive.
  - Development of 3D structure of fillers for highly thermoconductive and electro-insulating polymeric composites materials.
  - Development of dry adhesives for medical application.

Master's Researcher **March 2015 – August 2017**

- Synthesis and characterization of UV-crosslinked pressure-sensitive adhesive (PSA).
- Preparation of the bimetal particles and N-doped graphene for electrode counter in the dye-sensitized solar cell project.
- Synthesis and functionalization of carbon-based materials for highly thermoconducitve PSA composites (2 published papers).
- Polymer processing experience: Extruder, Injection Molding, Insert Molding, and Multi-Shot Molding.

RESEARCH PUBBLICATION (Click the title to open PDF)

1. **M.C. Vu**, T. H. Jang, C. B. Kim, W.K. Choi, D. H. Kim, S.R. Kim, 3D printing of copper particles and poly(methyl methacrylate) beads containing poly(lactic acid) composites for enhancing thermo-mechanical properties, **J. Appl. Polym. Sci**., 2020 **(IF 2.2)**
2. **M.C. Vu**, N.A.T. Thieu, W.K. Choi, M.A. Islam, S.R. Kim, Ultralight Covalently Interconnected Silicon Carbide Aerofoam for High Performance Thermally Conductive Epoxy Composites, **Comp. Part A**, 2020. **(IF 6.4)**
3. **M.C. Vu**, I.H. Kim, W.K. Choi, C.S. Lim, M.A. Islam, S.R. Kim, Highly Flexible Graphene Derivative Hybrid Film: An Outstanding Nonflammable Thermally Conductive yet Electrically Insulating Material for Efficient Thermal Management, **ACS Appl. Mater. Interface**, 2020. **(IF 8.8)**
4. **M.C. Vu**, W.K. Choi, S.G. Lee, P.J. Park, D.H. Kim, M.A. Islam, S.R. Kim, High Thermal Conductivity Enhancement of Polymer Composites with Vertically Aligned Silicon Carbide Sheet Scaffold, **ACS Appl. Mater. Interface**, 2020. **(IF 8.8)**
5. **M.C. Vu**, N.A.T. Thieu, J.H. Lim, W.K. Choi, J.C. Won, M. A. Islam, S.R. Kim, Ultrathin Thermally Conductive Yet Electrically Insulating Exfoliated Graphene Fluoride Film for High Performance Heat Dissipation, **Carbon**, 2020. **(IF 8.8)**
6. **M.C. Vu**, Q.V. Bach, D.D. Nguyen, T.S. Tran, M. Goodarzi, 3D Interconnected Structure of PMMA Microbeads Coated with Copper Nanoparticles for Highly Thermal Conductive Epoxy Composites, **Comp. Part B**, 2019. **(IF 7.7)**
7. **M.C. Vu**, Y.H. Bae, M.J. Yu, S.R. Kim, Thermally Conductive Adhesives from Covalent-Bonding of Reduced Graphene Oxide to Acrylic Copolymer, **The Journal of Adhesion**, 2019. **(IF 2.6)**
8. **M.C. Vu**, Y.H. Bae, V.C Doan, S.R. Kim, Self-Assembly of Carbon Nanotubes and Boron Nitride via Electrostatic Interaction for High Thermal Conductivity and Electrical Resistivity Epoxy Composites, **Macromol. Res.** (2018). **(IF 2.0)**
9. **M.C. Vu**, Y.H. Bae, M.J. Yu, V.C Doan, S.R. Kim, Core-Shell Structured Carbon Nanotube-PMMA Beads as Thermoconductive Filler in Epoxy Composites, **Comp. Part A**, 2018. **(IF 6.4)**
10. **M.C. Vu**, G.D. Park, Y.H. Bae, S.R. Kim, Enhanced Thermal Conductivity of Pressure Sensitive Adhesives Using Hybrid Fillers of SiC Microparticle and SiC Nanoparticle Grafted Graphene Oxide, **Polymer (Korea)**, 2016.
11. **M.C. Vu**, G.D. Park, Y.H. Bae, M.J. Yu, T.K. An, S.G. Lee, S.R. Kim, Pressure-Sensitive Adhesive Composites with a Hydrophobic Form of Graphene Oxide for Enhanced Thermal Conductivity, **Macromol. Res.**, 2016. **(IF 2.0)**
12. N.A.T. Thieu, **M.C. Vu**, D.H. Kim, V.C. Doan, S.R. Kim, Effect of aspect ratio of vertically aligned copper nanowires in the presence of cellulose nanofibers on the thermal conductivity of epoxy composites, **Polym. Adv. Tech**., 2020. **(IF 2.6)**
13. N.A.T. Thieu, **M.C. Vu**, E.S. Lee, V.C. Doan, S.R. Kim, Enhancement of Thermal Conductivity of Poly(methylmethacrylate) Composites at Low Loading of Copper Nanowires, **Macromol. Res.**, 2019. **(IF 2.0)**
14. V.C. Doan, **M.C. Vu,** M.A. Islam, S.R. Kim**,** Copper Flake-Coated Cellulose Scaffold to Construct Segregated Network for Enhancing Thermal Conductivity of Epoxy Composites, **Comp. Part B**, 2019.
15. V.C. Doan, **M.C. Vu,** M.A. Islam, S.R. Kim**,** PMMA-Functionalized Reduced Graphene Oxide-Based Core–Shell Structured Beads for Thermally Conductive Epoxy Composites, **J. Appl. Pol. Sci.,** 2019. **(IF 2.5)**
16. M.J. Yu, M.C. Vu, H.J. Park, S.R. Kim, Fabrication and Characterization of the Nano-and Micro-Particles Applied Dry Adhesives, **J. Adhesion Interface,** 2019.

17. Y.H. Bae, M.J. Yu, **M.C. Vu**, S.R. Kim, Synergistic Effects of Segregated Network on PMMA Beads And Sintering of Copper Nanoparticles on Thermal and Electrical Properties of Epoxy Composites, **Com. Sci. Tech**., 2018. **(IF 7.1)**
18. M.J. Yu, T.S. Kwon, Y.H. Bae, M.C. Vu, S.R. Kim, Effects of Carbon-Based Nanofillers on the Structure and Property of Phenolic, **Polymer (Korea)**, 2018.
19. Y.H. Bae, M.J. Yu, **M.C. Vu**, B.C. Lee, S.R. Kim, Acoustic Characteristics and Thermal Properties Polycarbonate/Graphite Intercalation Compound Composites, **Polymer (Korea)** 2017.
20. Y.H. Bae, G.D. Park, **M.C. Vu**, H.O. Jung, S.R. Kim, Thermal Conductivity Improvement by Cu Surface Treatments and Incorporation of PMMA Beads on the Cu/Epoxy Composites, **Polymer (Korea)**, 2016.

RESEARCH SKILLS

- Profound knowledge and experiment research on synthesis of nanomaterials such as Graphene derivatives, Carbon Nanotubes, Boron Nitride, and Silicon Carbide.
- Strong background in synthesis of the UV-crosslinked pressure-sensitive adhesive, and the stretchable, self-healable polyurethane.
- Experience in: chemical vapor deposition (CVD), physical evaporation, and polymerization.
- Expertise in: FT-IR, NMR, UV-Vis, XRD, XPS, Raman, SEM, EDX, TEM, AFM, Tension test, Dynamic Mechanical Analysis, Thermal Gravity Analysis, Thermal Diffusivity, Electrical Conductivity, Electromagnetic Interference Shielding, Electrochemical Impedance Spectroscopic (EIS).

TEACHING EXPERIENCE

- Assisted professors to facilitate undergraduate students (30-70 members). Topics included: current research in thermoconductive polymer composites, fundamental of polymer materials.
- Prepared course material including laboratory experiments, lectures, exams, homework, and practice problems.
- Assisted the supervisor in directing and mentoring undergraduate students (+20 members) in laboratory experiment classes.
- Supervised a team consisting of 3-5 graduate students in experiment, writing and preparation of manuscript for publication.
- Led discussion sections and tutorials of undergraduate students, planned lessons and activities, graded papers and provided comments.
- Experienced in report writing and writing up research work.

FUNDING AND AWARDS

- Mar 2015: Full scholarship for Master program from Korea National University of Transportation ($18.000/year).
- Aug 2017: Full scholarship for Doctoral program from Korea National University of Transportation ($24.000/year).

ADDITIONAL INFORMATION

Reviewer/Sub-reviewer: ACS Nano, ACS Applied Materials and Interfaces, Chemical Engineering Journal, Composite Part A, Composites Part B, Macromolecules Research.

REFERENCES

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