

MINH CANH VU

vmcanh@ut.ac.kr | +82-10-8349-1992 | <http://vmcanh.github.io>

PERSONAL STATEMENT

A dedicated, thorough and fast-learning person with a broad and acute interest in the discovery 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,

PhD in Polymer Science and Engineering

Republic of Korea

expected August 2020

- Advisor: Prof. Sung-Ryong Kim
- Dissertation: *Study on thermoconductive and flexible graphene derivatives nanosheets based films for thermal management applications.*
- GPA: 4.2/4.5

Master in Polymer Science and Engineering

August 2017

- Thesis: *Study on the thermally conductive pressure-sensitive adhesives composites based on graphene filler.*
- GPA: 4.2/4.5

Industrial University of HoChiMinh City,

Bachelor in Chemical Engineering

Viet Nam

August 2014

- Thesis: *Green synthesis of lubricant oil from oleic acid.*
- Advisor: Prof. Nguyen Thi Thanh Huong
- GPA: 3.0/4.0

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 retardant 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 electroinsulative 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 electroinsulative polymeric composites materials.
 - Development of dry adhesives for medical application.

- 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 (Carbon nanotubes and Graphene oxides) for highly thermal conductivity of PSA composites (2 published papers).
- Polymer processing experience: Extruder, Injection Molding, Insert Molding, and Multi-Shot Molding.

RESEARCH PUBLICATION (Click the title to open PDF)

1. 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. Interface Mater.**, 2020.
2. **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.
3. N.A.T. Thieu, **M.C. Vu**, E.S. Lee, V.C. Doan, S.R. Kim, Loading of Copper Nanowires Enhancement of Thermal Conductivity of PMMA Composites at Low Loading of Copper Nanowires, **Macromol. Res.**, 2019.
4. **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.
5. 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.
6. 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.
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.
8. 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.
9. **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).
10. **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.
11. 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.
12. 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.
13. 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.
14. **M.C. Vu**, G.D. Park, Y.H. Bae, S.R. Kim, Enhanced Thermal Conductivity of Pressure-Sensitive Adhesive using Hybrid Fillers of SiC Microparticle and SiC Nanoparticle Grafted Graphene Oxide, **Polymer (Korea)**, 2016.
15. **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.
16. 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, XRD, XPS, Raman, SEM, EDX, TEM, AFM, Tension test, Dynamic Mechanical Analysis, Thermal Gravity Analysis, Thermal Diffusivity, Electrical Conductivity, Electromagnetic Shielding Interference, 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 2015: 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

Prof. Sung-Ryong Kim

Department of Polymer Science and Technology, Korea National University of Transportation, Republic of Korea

Email: srkimut@ut.ac.kr

Prof. Kyung Min Kim

Department of Polymer Science and Technology, Korea National University of Transportation, Republic of Korea

Email: kmkim@ut.ac.kr

Dr. Won-Kook Choi

Center for Optoelectronic Materials and Devices, Korea Institute of Science and Technology, Republic of Korea

Email: wkchoi@kist.re.kr

Prof. Md Akhtarul Islam

Department of Chemical Engineering and Polymer Science, Shahjalal University of Science and Technology, Bangladesh

Email: mislam@sust.edu