

Curriculum Vitae



Full Name:

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Research Interest: nanomaterials (CNTs, graphene, nanowires, MoS₂, h-BN, and other TMDs), dispersion of CNTs-graphene flakes-AgNWs, 2D materials synthesis (CNTs, graphene), graphene transfer techniques (PMMA, gold film, mechanical, electrochemical, etc.), doping strategies (wet and dry) with dopants (TFSA, AuCl₃, HNO₃, FeCl₃, benzyl viologen (BV), F₄-TCNQ, Cl₂, BCl₃, N₂, CF₄, O₂, etc.) on 2D materials, plasma (doping, etching, cleaning, pulse, low-energy, free-damage) on nanomaterials, self-assembly block copolymer (BCP), laser-nanomaterial interaction, applications (composites, solar cell, catalysts, HER, water splitting, wearable electronics, nanogenerator, energy storage, OLED, transistor, sensor, flexible display)

COMPLEMENT INFORMATION

- **SUFFICIENTLY SOFTWARE:**
 - ✓ Mathematics and Mable
 - ✓ Origin 8.0
 - ✓ Microsoft Office (Word, PowerPoint, Excel)
 - ✓ iThenticate, Grammarly
- **PERSONALITY CHARACTERS:**
 - ✓ Energetic, Creative, Funny
- **FAVOURITS:**
 - ✓ Music, fiction movies, football, volleyball, basketball, science book, etc.

QUALIFICATIONS

- ✓ Team-work spirit , good adaptation , high responsibility , eager to learn new skills
- ✓ Ability to work in high pressure environment
- ✓ Ability to communicate and presentation well orally and well writing in English

PROFICIENT EQUIPMENT SYSTEMS

- ✓ Spray Coating
- ✓ Spin Coater
- ✓ Electronic Balance
- ✓ Four-Point Probe (sheet resistance)
- ✓ Sonicator
- ✓ Homogenizer
- ✓ Centrifugation
- ✓ Stirring & Hot Plate
- ✓ Bending test
- ✓ ICP (Inductively coupled plasma)
- ✓ XRD (powder, thin film)
- ✓ Water droplet contact angle measurement
- ✓ PE-CVD (Plasma enhanced chemical vapour deposition)
- ✓ UV-Vis-NIR spectra
- ✓ FE-SEM (Field emission-scanning electron microscopy)
- ✓ AFM (atomic force microscopy)
- ✓ Raman
- ✓ Vacuum thermal annealing equipment
- ✓ α - step for measuring the thickness
- ✓ Atmosphere Pressure and Low Pressure chemical vapour deposition (APCVD, LPCVD) for Graphene synthesis
- ✓ Optical Microscopy
- ✓ E-beam (Thermal) Evaporator
- ✓ Mask Aligner
- ✓ Hall Effect Measurement Equipment (mobility, carrier concentration)

Education /Professional Experience

Degree	University / Institute	Advisor	Year
Researcher (Carbon Nanotubes)	Carbon Nanotubes Research Center, Sungkyunkwan University	Prof Young Hee Lee	2010-2011
Ph.D (Nanoscience and Nanotechnology)	SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University, Korea	Prof Geun Young Yeom	2012-2016
Postdoctoral Researcher (Materials Science)	School of Advanced Materials Science and Engineering, Sungkyunkwan University, Korea	Prof Jae-Young Choi Prof Dongmok Whang	2016-2017
Research Fellow (Materials Science)	Center for Multidimensional Carbon Materials, Institute for Basic Science, Ulsan, Korea	Prof Feng Ding	2017-Now

PhD Thesis: “Chlorine Plasma Doping on CVD Graphene Layers Through Pre-doping/Trap-doping and CNTs Dispersion and Their Applications in Flexible Display and Sensor”

PROFESSIONAL ACTIVITIES

- Member, Vietnamese Theoretical Physics Society
- Member, The Japanese Society of Tropical Medicine
- Member, American Association for The Advancement of Science (AAAS), USA (AAAS Member Number: 41722496)

Conferences / Symposiums / Workshop attended

Year	International Conferences attended	Presentation Type	Title
2012	The 4 th Microelectronics and Plasma technology conference (ICMAP), Jeju, Korea	<i>Poster</i>	<u>V.P. Pham</u> , Y. W. Jo, Oh J. S, S.M, Park J. W, Kim S.H, Jhon M.S, Yeom G.Y. "Effect of plasma-nitric acid treatment on the electrical conductivity of flexible transparent conducting films"
2014	AVS 2014-9-14 Nov, Baltimore, Maryland, USA	<i>Oral</i>	<u>V.P. Pham</u> , K.N Kim, M. H Jeon, K. S. Kim, G. Y. Yeom. "Cyclic Chlorine Trap-Doping for Transparent, Conductive, Thermally Stable and Damage-Free Graphene"
2014	Korean Institute of Surface Engineering Conference.20-21 Nov 2014, Suwon, Korea	<i>Oral</i>	<u>V.P. Pham</u> , K.N Kim, M. H Jeon, T.Z. Lin, G. Y. Yeom. "The Extraordinary Route of Chlorine Pre-Substitutional Doping on Graphene/Copper Substrate"
2015	SKKU- NUS (National University of Singapore) joint Workshop, 27 Jan 2015, Suwon, Korea	<i>Poster</i>	<u>V.P. Pham</u> , K.N Kim, M. H Jeon, K. S. Kim, G. Y. Yeom. "Cyclic Chlorine Trap-Doping for Transparent, Conductive, Thermally Stable and Damage-Free Graphene"
2015	ISPlasma 2015, 26-31 March, Nagoya, Japan	<i>Poster</i>	<u>V.P. Pham</u> , K.N Kim, M. H Jeon, K. S. Kim, G. Y. Yeom. "Damage-Free Layer-by-Layer Graphene by Plasma Chlorine-Trap Technique for High Transparency, Conductivity, Thermal Stability".
2015	E-MRS- 11-15 May 2015, Lille, France	<i>Oral</i>	<u>V.P. Pham</u> , K. H. Kim, K.N Kim, M. H Jeon, G. Y. Yeom. "The anomalous route of Chlorine Pre-Substitutional Doping on Graphene/Copper Substrate"
2015	E-MRS- 11-15 May 2015, Lille, France	<i>Oral</i>	<u>V. P. Pham</u> , T. Z. Lin, M. H. Jeon, D. H. Kim, C. Huffman, and G. Y. Yeom. "Layer by layer etching of MoS ₂ "
2015	IUMRS, 25-29 Oct, Jeju, Korea	<i>Oral</i>	<u>V.P. Pham</u> , K. H. Kim, K.N Kim, M. H Jeon, G. Y. Yeom. "Effect of chlorine doping on CVD graphene under innovated inductively coupled plasma source"
2015	IUMRS, 25-29 Oct, Jeju, Korea	<i>Oral</i>	K.N. Kim, <u>V.P. Pham</u> , G.Y. Yeom. "Graphene doping for various electronic applications using controlled plasma"

2015	Materials Research Society of Korea Conference, Gumi City, Korea, May 2015	<i>Oral</i>	Lee Cheol Hee, V.P. Pham , G.Y. Yeom. Cyclic Chlorine Trap-Doping for Transparent, Conductive, Thermally Stable and Damage-Free Graphene
2016	5 th International Symposium on Graphene Devices, Brisbane, Australia , 11-14 July, 2016 http://www.isgd5.com	<i>Invited Speaker</i>	V. P. Pham , M. T. Nguyen, N.-E. Lee, G. Y. Yeom. A Chlorine-Trapping in CVD Bilayer Graphene for Resistive Pressure Sensing with High Detection Limit and High Sensitivity

ATTENDED PROJECTS

- 1) Graphene Flake Project: “Technical development of transparent electroconductive film manufacturing and surface treatment for low resistance of graphene nanoplatelet”. *A Project and Supported Funds from POSCO Corp.* From May 2011 to November 2012
- 2) Development of hybrid process technology for 3-D deposition and etching. Collaboration with KAIST, Yonsei University, Korea University. *Project of the Korea Ministry of Education, Science and Technology.* From 2012-2016
- 3) Atomic layer graphene low damage etching using etching techniques. *Collaboration with Samsung Advanced Institute of Technology (SAIT), and Samsung Electronics Corp.* From 2013/03/01~2014/02/28
- 4) Graphene Flake/Ag Nanowire Hybrid Material for Next Generation AMOLED Device. *A Project of Samsung, LG, and Korea Ministry of Education, Science and Technology.* From 2015-2019.
- 5) Development of Growth and Transfer Technology for Defectless 3.5 x 3.5 cm² Single Crystalline Graphene. *A Project of Samsung.* From 2016-2017
- 6) Direct Growth of CVD Graphene on Insulating substrates based on Copper catalyst. *A Project of Samsung.* From 2016-2017
- 7) Controllable Synthesis of Single-Walled Carbon Nanotubes with High-Quality and Large-Scale. *Center for Multidimensional Carbon Materials (CMCM), Institute for Basic Science (IBS).* From 6/2017-now

PATENT

1. A low energy doping control using the low damage plasma doping
G. Y. Yeom, **V. P. Pham**, K. N. Kim, S. H. Lee, J. S. Oh, J. S. Oh.
Korean Patent [10-2015-0158376]

PUBLICATIONS

IF index: Chemical Society Reviews: 38.62, Advanced Materials: 19.8, 2D Materials: 6.94, Nanoscale: 7.37, Carbon: 6.34, RSC Advances: 3.11, ECS: 1.79, Science of Advanced Materials: 1.67, Vacuum: 1.53, JJAP: 1.4, JVSTA: 1.374

- 1) **V. P. Pham**,* Hyeon-Sik Jang, Dongmok Whang,* Jae-Young Choi*. “Direct Growth of Graphene on Rigid and Flexible Substrates: Progress, Applications, and Challenges”
Chemical Society Review, 2017, DOI: [10.1039/C7CS00224F](https://doi.org/10.1039/C7CS00224F) (**Corresponding authors**)
- 2) **V. P. Pham**, G. Y. Yeom. “Recent Advances in Doping of Molybdenum Disulfide: Industrial Applications and Future Prospects” *Advanced Materials*, 28, (2016), 9024-9059.
- 3) **V. P. Pham**, M. T. Nguyen, J. W. Park, S. S. Kwak, D. H. T. Nguyen, M. K. Mun, H. D. Phan, D. S. Kim, K. H. Kim, J. Lee, N.-E. Lee, G. Y. Yeom. “Chlorine-Trapped CVD Bilayer Graphene for Resistive Pressure Sensor with High Detection Limit and High Sensitivity”. *2D Materials*, 2017, 4, 025049
- 4) **V. P. Pham**, K.N Kim, M. H Jeon, K. S. Kim, G. Y. Yeom. “Cyclic Chlorine Trap-Doping for Transparent, Conductive, Thermally Stable and Damage-Free Graphene”. *Nanoscale* (2014), 6, 15301-15308.
- 5) **V. P. Pham**, K. H. Kim, M. H Jeon, S. H. Lee, K.N Kim, G. Y. Yeom. “Low Damage Pre-Doping on Graphene/Cu Using a Chlorine Inductively Coupled Plasma”. *Carbon*, 95 (2015), 664-671.
- 6) **V. P. Pham**,* Anurag Mishra, Geun Young Yeom*. “The enhancement of Hall mobility and conductivity of CVD graphene through radical doping and vacuum annealing” *RSC Advances*, 2017, 7, 16104-16108 (***Corresponding author**)
- 7) **V. P. Pham**, D S Kim, K. S. Kim, J. W. Park, K. C. Yang, S. H. Lee, K. N. Kim, G. Y. Yeom. “Low Energy BCl₃ Plasma Doping of Few-Layer Graphene”. *Science of Advanced Material* (2016), 8, 884-890.
- 8) **V. P. Pham**, Jo Y. W., Oh J. S, Kim S.M, Park J. W, Kim S.H, Jhon M.S, Yeom G.Y. “Effect of plasma-nitric acid treatment on the electrical conductivity of flexible transparent conducting films”, *Jpn. J. Appl. Phys.* 52, (2013) 075102.
- 9) K.N Kim, **V. P. Pham**, G. Y. Yeom. “Chlorine Radical Doping of a Few Layer Graphene with Low Damage”. *ECS Journal of Solid State Science and Technology*, 4(6) N5095-N5097 (2015).
- 10) Park J.W, Lim J.T, Oh J.S, Kim S.H, **V. P. Pham**, Jhon, M.S, Yeom G.Y. “Electron-injecting properties of Rb₂CO₃-doped Alq₃ thin films in organic light-emitting diodes. *J. Vac. Sci. Technol. A*, 31, 3, (2013).
- 11) K. C. Yang, S. W. Park, M. H. Jeon, **V. P. Pham**, D. Y. Lee, T. G. Shin, J. G. Park, G. Y. Yeom. Influence of pulsed bias frequency on the etching of magnetic tunneling junction materials. *Vacuum* 2016, 127, 82-87.