

Associate Professor Minh Triet Dang

Dr Minh Triet Dang is an Associate Professor of Physics at the Department of Physics Education, School of Education, Can Tho University, Vietnam. His research focuses on computational and condensed matter physics, with particular expertise in first-principles simulations of low-dimensional materials, colloidal systems, and advanced energy-storage materials. His work spans fundamental studies of soft matter and nanostructures to applications in optoelectronics, gas sensing, and lithium- and sodium-ion batteries.

A/Prof Dang has led and co-led numerous competitive research projects funded by the Vietnam National Foundation for Science and Technology Development (NAFOSTED), the Ministry of Education and Training, the Vingroup Innovation Foundation (VINIF), VinUniversity, and Can Tho University. His research has also resulted in patented technologies for battery cathode materials and molecular simulation methods, demonstrating strong translational potential.

He has authored 42 (international) and 19 (Vietnamese) peer-reviewed journal articles including *Advanced Materials*, *Physical Review Letters*, *ACS Photonics*, *Applied Surface Science*, *RSC Advances*, *Dalton Transactions*, and *Diamond and Related Materials*. His publications cover a broad range of topics in condensed matter physics, nanomaterials, computational materials science, and electrochemical energy storage. In addition to his research, he has co-authored undergraduate textbooks on computational physics, mathematical methods for physics, electromagnetism, and biophysics, contributing significantly to physics education in Can Tho city, Vietnam.

Employment

2025-present	Associate Professor at Department of Physics, School of Education, Can Tho University, Vietnam.
2016-2025	University Lecturer at Department of Physics, School of Education, Can Tho University, Vietnam.
2015-2016	Design Engineer, ASML, Veldhoven, the Netherlands.
2011-2015	PhD researcher in Physics, University of Amsterdam, Amsterdam.
2008-2011	Master student in Physics, University of Amsterdam, Amsterdam.
2006-2008	University Lecturer at Can Tho University, Can Tho, Vietnam.

Qualifications/Certificates

2011-2016	PhD in Physics, University of Amsterdam. Dissertation title: Non-equilibrium transitions in colloidal glasses and gels UvA-Digital Academic Repository: https://pure.uva.nl/ws/files/2571463/168639_MT_Dang_PhD_thesis_online.pdf
2008-2011	Master of Physics (Cum Laude), University of Amsterdam.
2008-2010	Master of Mathematics and Science Education (Cum Laude), University of Amsterdam.
2002-2006	Bachelor of Physics and Computer Science Education (Excellent), Can Tho University.

Teaching and Learning

- Teaching undergraduate courses in *Advanced Mathematics for Physics, Electromagnetism, Computational Physics, and Materials Science* since 2017.
- Supervised 28 bachelor's theses in Physics Education and 12 master's theses in Mathematical and Theoretical Physics.
- Supervised one PhD student to completion (2019-2023); currently supervising seven PhD students in Mathematical and Theoretical Physics.
- Authored undergraduate-level textbooks in *Computational Physics, Mathematics for Physics 1, Electromagnetism, Biophysics* for the Physics Education program.

Research grants

No.	Project title	Research role	Research ID and funding organization	Time duration	Status
1	Simulations of the self-assembly of patchy colloids with critical Casimir forces	Principle Investigator	T2018-68, Can Tho University	2018-2019	Completed
2	Non-equilibrium dynamic transition, morphology, and opto-electronic properties of soft nanostructures	Principle Investigator	103.01-2018.308, Vietnam National Foundation for Science and Technology Development (NAFOSTED)	2019-2021	Completed (2022-52-0874/NS-KQNC)
3	Effects of shapes and defects on the optoelectronic properties of blue phosphorene quantum dots	Principle Investigator	T2018-68, Can Tho University	2022-2023	Completed
4	Simulation of nanostructures – applications in agriculture	Key investigator	A-12, Japanese Official Development Assistance (ODA) – Can Tho University	2021	Completed
5	Research and fabrication of nickel-rich transition metal oxide cathode materials based on $\text{LiNi}_{0.9}\text{Mn}_{0.05}\text{Co}_{0.05}\text{O}_2$ (NMC9.5.5) for CR2032 Lithium-ion rechargeable batteries	Principle Investigator	B2024-TCT-16, Ministry of Education and Training	2024-2025	Completed
6	CR2032-type sodium ion battery (Na-ion battery CR2032) with sodium-lithium-manganese oxides base materials: A feasibility study for manufacturing	Co-Principle Investigator	VINIF.2023.DA080, Vingroup Innovation Foundation	2023-2026	ongoing
7	Theory-guided design of spintronic Materials using advanced multiscale analysis	Co-Principle Investigator	VINUNI.2526.CMIT.13 VinUniversity	2026-2027	ongoing

External research and education services

- Reviewer for the Vietnam National Foundation for Science and Technology Development (NAFOSTED).
- Annual evaluator for a PhD student in physics at the University of Amsterdam.
- Reviewer for scholarly journals, including *Carbon Energy*, *Journal of Energy Storage*, *Energy Technology*, *Joule*, *Journal of Magnetism and Magnetic Materials*, *Journal of Physical Chemistry C*, *Polyhedron*, *Surfaces and Interfaces*, *Colloids and Surfaces A*, *Journal of Science: Advanced Materials and Devices (JSAMD)*.
- PhD thesis examiner for HCMC University of Technology and Can Tho University.
- PISA Quality Monitor for middle and high school students in the Mekong Delta, Vietnam and Provincial Quality Monitor for elementary, middle, and high school students in Can Tho city.

Patents

1. Phạm Vũ Nhật, Nguyễn Thành Tiên, **Đặng Minh Triết**, Phạm Thị Bích Thảo, *Phương pháp mô phỏng liên kết phân tử Xystein trên bề mặt kim loại bạc (Method for simulating molecular bondings of cysteine on silver metal surfaces)*, patent number 54675, approved by the Intellectual Property Office of Vietnam on 26/11/2025.
2. Nguyễn Văn Nghĩa, Tô Văn Nguyễn, Lương Trung Sơn, Ngô Quý Quyền, **Đặng Minh Triết**, Nguyễn Võ Anh Duy, *Phương pháp chế tạo vật liệu điện cực dương oxit natri-lithi-mangan được pha tạp cation hoặc đồng thời cả cation và anion sử dụng cho pin ion natri, và vật liệu thu được bởi phương pháp này (Method for fabricating sodium-lithium-manganese oxide cathode materials doped with cations or simultaneously with cations and anions for sodium-ion batteries, and materials obtained therefrom)*, patent submitted to the Intellectual Property Office of Vietnam on 17/6/2024.
3. **Đặng Minh Triết**, Nguyễn Văn Nghĩa, Trần Văn Thiện, Tô Văn Nguyễn, Nguyễn Võ Anh Duy, Dương Trọng Nhân, Trần Thị Nhân, Nguyễn Trúc Anh, Văn Phạm Đan Thủy, *Hệ thống và phương pháp sàng lọc, đánh giá và tối ưu hoá cấu trúc vật liệu điện cực molybden sulfua vô định hình cho pin natri-lưu huỳnh (Na-S) hoạt động ở nhiệt độ phòng (A platform and method for screening, evaluation, and structural optimization of amorphous molybdenum sulfide electrode materials for room-temperature sodium-sulfur (Na-S) batteries)*, patent submitted to the Intellectual Property Office of Vietnam in July 2026.

Publications

Four undergraduate-level textbooks, 61 peer-reviewed journal articles.

h-index: 14, i10-index: 18

https://scholar.google.com/citations?hl=en&user=65gEkRMAAAAJ&view_op=list_works

Top 20 publications

No.	Title	Main author	Journal title	Journal type	Citation	Date of publication
1	Visualizing the Structural Solid-Liquid Transition at Colloidal Crystal-Fluid Interfaces		Advanced Materials	ISI Q1, IF: 29.1 (2025)	20	2011
2	Resolving structural modifications of colloidal glasses by combining x-ray scattering and rheology		Scientific Reports	ISI Q1, IF: 4.9 (2026)	51	2013

3	Temperature-sensitive colloidal phase behavior induced by critical Casimir forces	x	The Journal of Chemical Physics	ISI Q1, IF: 3.1 (2026)	56	2013
4	Shear Banding of Colloidal Glasses: Observation of a Dynamic First-Order Transition		Physical Review Letters	ISI Q1, IF: 9.4 (2026)	59	11/2014
5	Nonequilibrium free energy of colloidal glasses under shear	x	Journal of Physics D: Applied Physics	ISI Q1, IF: 3.2 (2026)	4	7/2018
6	Measuring the free energy of hard-sphere colloidal glasses	x	Journal of Physics D: Applied Physics	ISI Q1, IF: 3.2 (2026)	4	1/2022
7	Stacking-order-dependent excitonic properties reveal interlayer interactions in bulk ReS ₂		ACS Photonics	ISI Q1, IF: 6.0 (2026)	13	8/2023
8	Modified Coprecipitation Synthesis of Nickel-Rich NMC (Li _{1.0} Ni _{0.6} Mn _{0.2} Co _{0.2} O ₂) for Lithium-Ion Batteries: A Simple, Cost-Effective, Environmentally Friendly Method	x	ACS Omega	ISI Q1, IF: 5.2 (2026)	14	11/2023
9	Polaronic defect enhances optoelectronic and transport properties of blue phosphorene quantum dots using first-principles methods	x	Computational Materials Science	ISI Q1, IF: 3.7 (2026)	5	2024
10	Electric field enhances the electronic and diffusion properties of pentagraphene nanoribbons for application in lithium-ion batteries: a first-principles calculations	x	RSC Advances	ISI Q1, IF: 6.1 (2026)	9	2024
11	Resolving adsorption mechanism of sodium polysulfides on Ti _{m+1} C _m O ₂ MXenes for application in sodium-sulfur batteries: a first-principles study	x	Applied Surface Science	ISI Q1, IF: 6.6 (2026)	10	2025
12	Codoping aluminum and boron enhances the stability and electrochemical properties of nickel-rich cathode materials for lithium-ion batteries	X	Dalton Transactions	ISI Q2, IF: 3.3 (2026)	9	2025
13	Unraveling the electronic mechanisms of transition metal and fluorine co-doping for enhanced electrochemical performance in sodium lithium manganese oxide cathodes	X	Dalton Transactions	ISI Q2, IF: 3.3 (2026)	3	2025
14	Insights into the role of Mn doping in NiCo ₂ S ₄ for enhanced electrochemical performance in supercapacitor applications	X	Colloids and Surfaces A: Physicochemical and Engineering Aspects	ISI Q1, IF: 5.4 (2026)	3	2025
15	First-principles insights into selenium and sulfur doping on Ti ₂ CO ₂ MXene for mitigating shuttle effect in lithium-sulfur batteries	X	Advances in Natural Sciences Nanoscience and Nanotechnol	ISI Q2, IF: 2.1 (2025)		2025

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16	First-principles insights into sulfur and nitrogen co-doped Ti_2CO_2 MXene as an advanced anchoring material for sodium polysulfides in sodium-sulfur batteries	X	RSC Advances	ISI Q1, IF: 6.1 (2026)	1	2025
17	Site-specific lithium adsorption and directional ion transport in Ti_2CO_2 MXenes: insights from nuclear magnetic resonance and climbing-image nudged elastic band calculations	X	RSC Advances	ISI Q1, IF: 6.1 (2026)		2025
18	Enhancement of stability and electronic properties of ultra-high nickel cathodes by aluminium and boron codoping studied by combined density functional theory and neural network models	X	RSC Advances	ISI Q1, IF: 6.1 (2026)		2025
19	Dopant-driven electronic coupling and fast gas sensing in gold-boron co-doped Si/MoS_2 heterostructures: a first-principles study	X	RSC Advances	ISI Q1, IF: 6.1 (2026)		2026
20	Modulating band topology and optical response of fluorinated graphene nanoribbons through controlled oxygen adsorption	X	Diamond and Related Materials	ISI Q1, IF: 5.2 (2026)		2026