

# Vo Chau Duc Phuong

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## BASIC INFORMATION

Given name : Phuong  
Family name : Vo Chau  
Middle name : Duc  
Date of Birth : 24/09/2002  
Nationality : Vietnamese  
ORC-ID : 0000-0003-0978-916X  
Birthplace : An Giang, Vietnam

## EDUCATION

<b>The Abdus Salam International Center for Theoretical Physics (ICTP)</b> <i>Diploma student, pre-PhD course</i> <i>Condensed matters and statistical physics</i>	Trieste, Italy <i>Sep 2024 – Now</i>
<b>University of Science</b> <i>Honours B.Sc. degree in physics; GPA: 8.88/10.0</i> <i>Specialize in theoretical physics</i>	Ho Chi Minh city, Vietnam <i>Sep 2020 – July 2024</i>
<b>Thoai Ngoc Hau highschool for the gifted</b> <i>Majots in physics; GPA: 9.1/10.0</i>	An Giang, Vietnam <i>Sep 2017 – July 2020</i>

## CODING SKILLS

**Beginner:** JULIA, MATHEMATICA  
**Intermediate:** FORTRAN, PYTHON, MATLAB, Bash

## RESEARCH EXPERIENCE

<b>Institute of Applied Mechanics and Informatics</b> <i>Internship</i> <ul style="list-style-type: none"><li>Worked on the “Calculation of Shift Tensor in Transition Metal Dichalcogenide” project under the supervision of <a href="#">Dr. Huynh Thanh Duc</a>. Investigating the shift current induced by optical excitation in two-dimensional transition metal dichalcogenides. Our approach is based on a second-order perturbation expansion of the semiconductor Bloch equations which are formulated in the basis of a three-band tight-binding model. From that, shift current tensors have been calculated for several different materials and their dependence on photon energy has been investigated and discussed. Results has been reported in the International Conference on Energy, Infrastructure and Environmental Research (<a href="#">EIER 2024</a>).</li><li>Worked on my bachelor thesis: “Calculation of The Linear-Absorption Spectrum of An Ideal Two-dimensional System of <math>MoS_2</math>”. Using Semiconductor Bloch Equations, the Coulomb interaction had been taken into account using the Hatree-Fock approximation. This work confirms the exciton binding energy in <math>MoS_2</math> in agreement with experiments using a model with a minimum number of energy bands. The findings were presented to the Department of Theoretical Physics at the University of Science in Ho Chi Minh City, Vietnam, receiving a grade of <b>9.4/10</b>.</li></ul>	Ho Chi Minh city, Vietnam <i>Feb 2023 – July 2024</i>
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## PUBLICATION


**Duc, C., & Huynh, T. D.** (2024). Calculation of shift current tensors in two-dimensional transition metal dichalcogenides. E3S Web of Conferences, 496, 02002–02002. <https://doi.org/10.1051/e3sconf/202449602002>


## OTHER ACADEMIC WORKS

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### Bachelor's thesis

Calculation of The Linear-Absorption Spectrum of An Ideal Two-dimensional System of  $MoS_2$

Thesis:  [GitHub](#)

Source code:  [GitHub](#)

*Abstract:* Using Semiconductor Bloch Equations, the Coulomb interaction had been taken into account using the Hatree-Fock approximation. This work confirms the exciton binding energy in  $MoS_2$  in agreement with experiments using a model with a minimum number of energy bands.

## AWARDS & ACHIEVEMENTS

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**Top 1<sup>st</sup>. in Physics majors (both in general and honour program) at the University of Science, National University of Ho Chi Minh city:** Archived the top 1<sup>st</sup>. rank in the physics class, selected for the honours program in the first year due to outstanding performance in high school. (admission class 2020-2024)

- Completed a rigorous curriculum with a focus on advanced theoretical and experimental physics.
- Engaged in cutting-edge research projects under the guidance of experienced professors.
- Awarded scholarships for academic excellence and opportunities for international exchange programs.

**Scholarship For Top Student In The Honours Class:** Received an award for being the top student in the honours class each semester. (2020-2023)

**2<sup>nd</sup> Prize in the "National Physics Olympics for College Students":** Annual Contest for college students in Vietnam, host by Phenikaa University, Hanoi, Vietnam. (2022)

- Participated in the annual national physics competition organized by **the Ministry of Education and Training, the Vietnam Physical Society**, and various universities.
- Demonstrated advanced problem-solving skills and a strong understanding of physics concepts.
- Engaged in theoretical and experimental physics challenges, showcasing creativity and analytical thinking.

**Golden Medals in "Traditional 30/04 Olympiad":** An annual academic competition in Vietnam, primarily for high school students from the southern region. It was established by Le Hong Phong High School for the Gifted and first held in 1995. (Award golden medals in both 2018 & 2019)

**Odon-Vallet Scholarship:** The Odon Vallet Scholarship, established by Professor Odon Vallet from Sorbonne University, is awarded annually to outstanding Vietnamese students. Sponsored by the scientific and educational organization "Rencontres du Vietnam," the scholarship aims to support talented students in their academic pursuits. (2018)

## REFEREES

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Natasa Stojic

Long-term visitor scientist

LB-301

The Abdus Salam International Center for Theoretical Physics

📍 ICTP - Strada Costiera, 11 — 34151 — Trieste, Italy

@ [nstojic@ictp.it](mailto:nstojic@ictp.it)

Prof. Natasa Stojic is my lecturer in my diploma program at ICTP.

Huynh Thanh Duc

Researcher

Institute of Applied Mechanics and Infomatics, Vietnam Academy of Science and Technology, Vietnam

📍 01 Mac Dinh Chi Street, District 1, Ho Chi Minh City, Vietnam

@ [htduc@hcmip.vast.vn](mailto:htduc@hcmip.vast.vn)

Dr. Huynh Thanh Duc is my supervisor for my works at HCMC INSTITUTE OF PHYSICS and also is my thesis's supervisor (2022-2024).

## LANGUAGE SKILLS

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**Vietnamese:** Mother-tongue

**English:** Reading and listening: fluently, writing and speaking: good

**German:** Beginner, basics word and phrase

**Latin:** Beginner

## ORGANIZATIONS AND VOLUNTEER EXPERIENCE

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### Organizations

#### Math and Science Summer Program

*Headmentor (2024)*

*Mentor (2023)*

*July 2023 & July 2024*

*Phenikaa University, Hanoi, Vietnam*

*University of Education, Hanoi, Vietnam*

- *Headmentor (2024)*: Organizing the program, topics and given lecture for student in physics section and join in the project committee at the final day's presentation.
- *Mentor (2023)*: Preparing and giving the lectures on multiple topics in Physics and join in the project committee at the final day's presentation.

#### Newton-Einstein-Schrödinger NES academic club

*2020-2024*

*member*

- *As Junior*: Prepared and delivered tutorial classes for final examinations. Participated as a volunteer with the NES club during summer and spring sessions.
- *As Senior*: Mentored the Juniors in multiple skills, helping them prepare for the tutorial class, and acting as a node between the student union of faculty and the club.

#### Physics student Union

*2020-2021*

*President*

*Ho Chi Minh University of Science*

- Organizing and managing the volunteering program within the major. Providing assistance and input on various issues for the faculty's student union.
- Collaborated with the student union to represent the collective voice of the student body in discussions and decision-making processes.
- Actively participated in initiatives aimed at improving the student experience and fostering a positive academic environment.

### Volunteer

#### ICTP 60<sup>th</sup> Anniversary🏆

*Trieste, Italy*

*Member*

*November 2024*

- Presented in Budinich Lecture Hall, helped in guiding participants into seat. Guiding the guest to their destination in ICTP's building.
- Helping other member in guiding and answer's guest questions

#### Volunteer Spring

*Ho Chi Minh city, Vietnam*

*Member*

*2022 & 2023*

- Prepared and delivered the academic physics seminar for elementary and high school students. Inspiring them to follow the scientific job.
- Assisted in the preparation of "Banh Chung & Banh Tet," traditional cakes for the Lunar New Year, contributing to a warm and festive atmosphere for the local community during New Year's Eve.

#### Green Summer Campaign🏆

*University of Science, Ho Chi Minh city, Vietnam*

*Member*

*2022 & 2023*

- Prepared and delivered the academic physics seminar for elementary and high school students. Inspiring them to follow the scientific job.

- Organized and guided a field trip through various laboratory facilities at the University of Science.  
Developed and facilitated a set of questions to encourage student engagement and foster inquiry.

## **Charity Meal**

*Ho Chi Minh city, Vietnam*

*Member*

*2021 & 2023*

- Assisted in preparing ingredients and cooking meals for community charity events at local pagodas.  
Coordinated the packing and transportation of meals to delivery sites, ensuring timely service.
- Organized and managed the extensive dish cleaning process afterward.