

# PGU-3 PROGRAM

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**Wednesday, 26 Nov.**

08:30 – 09:10: **Registration, coffee/tea**

## Plenary session 1

- 09:10 – 09:30: **Opening remarks**
- 09:30 – 10:20: **Plenary talk:**

<b>Dao Tien Khoa:</b> <i>Quantum mechanics of stars.</i>
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- 10:20 - 10:50: **Break.**

## Parallel sessions 1:

<b>Section 1 (S1):</b> <i>Quantum physics at small scales.</i>	<b>Section 2 (S2):</b> <i>Physics at large scales and quantum phenomena</i>
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- 10:50 – 11:40: **Invited talks**

<b>S1-I1: Le Anh Thu:</b> <i>Atoms and molecules in ultrafast intense laser pulses and attosecond physics: semiclassical and quantum perspectives.</i>	<b>S2-I1: Takada Masahiro:</b> <i>Large scale structure.</i>
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- 11:40 – 12:30: **Invited talks**

<b>S1-I2: Boninsegni Massimo</b> <i>Superfluid and supersolid phases: physical insight from computer simulations.</i>	<b>S2-I2: Kurihara Yoshimasa:</b> <i>Quantum GraviElectroDynamics</i>
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12:30 – 14:00: **LUNCH BREAK**

## Parallel sessions 2:

Section 1 (S1): <i>Quantum physics at small scales.</i>	Section 2 (S2): <i>Physics at large scales and quantum phenomena</i>
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- 14:00 – 14:50: **Invited talks**

S1-I3: <b>Nguyen Hai Chau:</b> <i>Measurements in quantum mechanics: from decoherence to ultradecohherence.</i>	S2-I3: <b>Park Seong Chan:</b> <i>Dark matter: if not WIMP, then what?</i>
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- 14:50 – 15:20: **Contributed talks (15 min per talk)**

S1-C1: <b>Tran Minh Hieu:</b> <i>Type-1 two Higgs doublet model: data fitting and detection ability.</i>	S2-C1: <b>Do Quoc Tuan:</b> <i>Anisotropic inflation in light of the ACT DR6 data.</i>
S1-C2: <b>Vo Van Thuan:</b> <i>Objective reality in quantum physics.</i>	S2-C2: <b>Kieu Thi Ny:</b> <i>From cosmic rays to lightning flashes: high-energy phenomena observed by the telescope array.</i>

- 15:20 – 15:50: **Break**

- **15:50 - 17:30: HEPS meeting.**

- Scientific session (*invited talks*):

1. **Le Duc Ninh** (Phenikaa univ. Hanoi):  
*Precision calculations and searching for new physics beyond the Standard Model.*
2. **Tran Minh Hieu** (HUST, Hanoi):  
*Theoretical high energy physics in Vietnam - An overview.*
3. **Cao Van Son** (ICISE, Quy Nhon):  
*Recent developments in Neutrino physics.*
4. **Dong Van Thanh** (HUST, Hanoi):  
*Belle II experiments and Vietnam group activities.*

- Organizational session (*in Vietnamese*)

- 18:00 - 21:00:

## BANQUET

**Thursday, 27 Nov.**

09:00 – 09:30: **coffee/tea**

### Plenary session 2

- 9:30– 10:20: **Plenary talk**

<b>Darriulat Pierre:</b> <i>The discoveries of W, Z and Higgs bosons.</i>
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- 10:20 - 10:50: Break/[Posters](#).

### Parallel sessions 3:

<b>Section 1 (S1):</b> <i>Quantum physics at small scales.</i>	<b>Section 2 (S2):</b> <i>Physics at large scales and quantum phenomena</i>
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- 10:50 – 11:40: **Invited talks**

<b>S1-I4: Kim Doris:</b> <i>Recent highlights from Belle and Belle II.</i>	<b>S2-I4: Nguyen Quynh Lan:</b> <i>Searches for dark matter using gravitational-wave detectors ((of LIGO-Vigo-KAGRA)).</i>
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- 11:40 - 12:30: **Invited talks**

<b>S1-I5: Koshio Yusuke:</b> <i>Physics in Super-Kamiokande and Hyper-Kamiokande.</i>	<b>S2-I5: Kanno Sugummi:</b> <i>Gravitational quantum effects.</i>
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12:30 – 14:00: **LUNCH BREAK**

### Parallel sessions 4:

<p><b>Section 1 (S1):</b> <i>Quantum physics at small scales.</i></p>	<p><b>Section 2 (S2):</b> <i>Physics at large scales and quantum phenomena</i></p>
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● 14:00 – 14:50: **Invited talks**

<p>S1-I6: <b>Oyama Yuichi</b> <i>What we have learned from our experience with Kamioka-related neutrino experiments.</i></p>	<p>S2-I6: <b>Yu Haibo:</b> <i>The small-scale Universe and the nature of dark matter.</i></p>
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● 14:50 – 15:35: **Contributed talks (15 min per talk)**

<p>S1-C3: <b>Prasad Vindhyavasini:</b> <i>New physics searches at BESIII</i></p> <p>S1-C4: <b>Nguyen Thi Dung:</b> <i>The commissioning and physics prospects of time of flight detector in the T2K ND280 upgrade.</i></p> <p>S1-C5: <b>Chen Chao:</b> <i>(Semi-)leptonic D decays at BESIII</i></p>	<p>S2-C3: <b>Pang Peter:</b> <i>Revealing tensions in neutron star observations with pressure anisotropy.</i></p> <p>S2-C4: <b>Natthason Autthisin:</b> <i>Gravitational wave echoes from three-form black hole.</i></p> <p>S2-C5: <b>Matthew Paul:</b> <i>Sustaining traversable wormholes in braneworld cosmology</i></p>
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● 15:35 - 16:00: **Break/Posters.**

**Poster sessions:**

● 16:00 – 16:45:

Machine gun talks (max: 1min x45 or 1.5min x30)
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● 16:45 - 18:00: **Poster session** (see the list of posters attached below).

**Friday, 28 Nov.**

09:00 – 09:30: **coffee/tea**

### Plenary session 3

- 09:30 – 10:20: **Plenary talk**

<b>Kusenko Alex:</b> <i>Primordial black holes</i>
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- 10:20 - 10:50: Break/[Posters](#).

### Parallel sessions 5:

<b>Section 1 (S1):</b> <i>Quantum physics at small scales.</i>	<b>Section 2 (S2):</b> <i>Physics at large scales and quantum phenomena</i>
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- 10:50 – 11:40: **Invited talks**

S1-17: <b>Nguyen Xuan Dung:</b> <i>Gravitons in fractional quantum Hall: From theory to experiment.</i>	S2-17: <b>Mukohyama Shinji:</b> <i>Gravity and cosmology beyond general relativity.</i>
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- 11:40– 12:30: **Invited talks**

S1-18: <b>Nguyen Quoc Hung:</b> <i>Quantum computation as a tool to study physics.</i>	S2-18: <b>Pi Shi:</b> <i>Gravitational wave cosmology.</i>
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12:30 – 14:00: **LUNCH BREAK**

### Parallel sessions 6:

<b>Section 1 (S1):</b> <i>Quantum physics at small scales.</i>	<b>Section 2 (S2):</b> <i>Physics at large scales and quantum phenomena</i>
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- 14:00 – 14:50: **Invited talks**

<b>S1-I9: Nguyen The Toan:</b> <i>Critical properties of conformal field theory at the boundary of the AdS/CFT correspondence and its relations in condensed matter physics.</i>	<b>S2-I9: Lee Bum-Hoon:</b> <i>The cosmology with the Gauss-Bonnet curvature and WIMP constraints.</i>
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- 14:50 – 15:40: Invited talk

**S2-I10: Nguyen Nhat Minh:**  
*What millions of galaxies have to say.*

- 14:50 – 15:35: **Contributed talks (15 min per talk)**

<b>S1-C6: Nguyen Minh Truong:</b> <i>The status of the COMET experiment at J-PRAC.</i>  <b>S1-C7: Xei Kaiji (IHEP, Beijing, China):</b> <i>Search for CP violation with spin entangled hyperon-antihyperon pairs at BESIII.</i>  <b>S1-C8: Ta Duy Hoang:</b> <i>A hierarchy of efficient bounds on quantum capacities.</i>	Invited talk (by Nguyen Nhat Minh, see above)
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- 15:35 – 16:05: **Break/posters**

- 16:05 – 17:20: **Contributed talks (15 min per talk)**

<b>S1-C9: Dao Xuan Viet:</b> <i>Monte Carlo studies of the two-dimensional XY model with four-fold anisotropy.</i>  <b>S1-C10: Nguyen Hai Phong:</b> <i>Magnetic and magneto-caloric investigation of amorphous systems in the description of disordered Ising model.</i>	<b>S2-C6: Rakesh K Jha,</b> <i>Four fold path to Thermality: Inequivalent purifications of Rindler wedge</i>  <b>S2-C7: Kavya N.S.:</b> <i>Can <math>f(Q)</math> gravity alleviate tension?</i>  <b>S2-C8: Sai Swagat Mishra:</b> <i>Padé cosmography and its insight into teleparallel gravity.</i>
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<p>S1-C11: <b>Nguyen Duy Huy</b> :  <i>Unlocking carbon cluster diversity: A swarm intelligence and machine-learning toolkit.</i></p> <p>S1-C12: <b>Nguyen Thi Hai Yen</b>:  <i>Resistivity characteristics near the metal–insulator transition in the half-filled Anderson–Hubbard model.</i></p> <p>S1-C13: <b>Nguyen Hoang Vu</b>:  <i>Color superconductivity in general dimension via holography.</i></p>	<p>S2-C9: <b>Neeraj Kumar</b>:  <i>Renyi constraints on black hole merger.</i></p> <p>S2-C10: <b>Khalid Saiullah</b>:  <i>Charged black holes in Lovelock gravity.</i></p>
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- 17:20 – 17:30: **Concluding remarks.**
- 17:30: **Closing session.**

## LIST OF POSTERS

1. **Das Kaustav** (IACS, Kolkata, India):  
*Quantum entanglement and Hawking radiation.*
2. **Hoang Van Quyet** (HNUE, Hanoi, Vietnam):  
*Quantum-corrected gravitational collapse and multi-messenger signatures: Beyond spherical symmetry in loop quantum gravity.*
3. **Le Cam Vi** (ICISE, Quy Nhon, Viet Nam):  
*Fourier transformation for non-parametric analysis of neutrino oscillation*
4. **Mai Hong Hanh & Cao Dinh Son** (University of Engineering and Technology, VNU, hanoi):  
*Optical properties of au-ion-implanted ZnO nanorods: A comparative study with Au nanoparticle deposition.*
5. **Nguyen Hoang Anh** (Phenikaa univ., Hanoi, Viet Nam):  
*Quantum neural networks force fields.*
6. **Nguyen Tuan Duy** (IOP, Hanoi, Viet Nam):  
*A flavor-dependent  $U(1)$  extension for flavor puzzle,neutrino mass, and dark matter.*

7. **Nguyen Van Duy** (Phenikaa univ., Hanoi, Viet Nam):  
*Quantum simulations of neutrino oscillations.*
8. **Nguyen Vo Nguyen Huy** (HUST, Hanoi, Viet Nam):  
*Phase transition of 2D Ising model with  $J_x$ - $J_y$ - $J_a$ - $J_b$  interaction.*
9. **Nurpeisoov Aiken** (Kazakh Nat. Univ., Kazakhstan, Viet Nam):  
*Experimental study of the  $^{11}\text{B}(^1\text{O}\text{B}, ^9\text{Be})^{12}\text{C}$  reaction at 41.3 MeV.*
10. **Pham Dinh Duy** (HUST, Hanoi, Viet Nam):  
*Shaped control pulses for high-fidelity single-qubit gates.*
11. **Pham Phuong Anh** (HUST, Hanoi, Viet Nam):  
*Hamiltonian-based precise and efficient neutrino oscillation probability computations for neutrino experiments.*
12. **Pham Van Ky** ( IOP, Hanoi, Viet Nam):  
*The perturbative  $f(R)$  theory: non-static charged black hole and embedding in the background of the FLRW cosmology, uniqueness of solutions, TOV equation.*
13. **Praveen Kumar Dhankar** (Symbiosis Inst. of Tech., Nagpur, India)  
*Statistical constraints on anisotropic Bianchi-III cosmology in  $f(R, T)$ -gravity using MCMC methods*
14. **Quách Khánh Đức** (HUST, Hanoi, Viet Nam)  
*Testing the maximum violation of the Leggett-Garg inequality with neutrino oscillation measurement.*
15. **Tran Phan Thuy Linh** (HNUE, Hanoi, Viet Nam):  
*First-principles analysis of structural and electronic characteristics of Si-, Ge-, and Sn-based Xene surfaces under CO or NO<sub>2</sub> adsorption.*
16. **Tran Thi Thanh Huyen** (Phenikaa univ., Hanoi, Viet Nam):  
*Input – Output theory for a superconducting qubit array coupled to a transmission line.*
17. **Tran Viet Hung** (Phenikaa univ., Hanoi, Viet Nam):  
*Machine learning force field.*
18. **Trương Minh Anh** (HUST, Hanoi, Viet Nam):  
*Unparticle effects on the scatterings of axion-like particles.*
19. **Truong Thanh Sang** (ICISE, Quy Nhon, Viet Nam):  
*Development of SiPM electronics for radiation detection and tomographic reconstruction.*



20. **Vu Van Huong** (Phenikaa univ., Hanoi, Viet Nam): Quantum:  
*Simulation of collective neutrino oscillations.*