

PGU-3 PROGRAM

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:**

Dao Tien Khoa:

Quantum mechanics of stars.

- 10:20 - 10:50: **Break.**

Parallel sessions 1:

Section 1 (S1):

Quantum physics at small scales.

Section 2 (S2):

Physics at large scales and quantum phenomena

- 10:50 – 11:40: **Invited talks**

S1-11: Le Anh Thu:

Atoms and molecules in ultrafast intense laser pulses and attosecond physics: semiclassical and quantum perspectives.

S2-11: Takada Masahiro:

Large scale structure.

- 11:40 – 12:30: **Invited talks**

S1-I2: Boninsegni Massimo

Superfluid and supersolid phases: physical insight from computer simulations.

S2-I2: Kurihara Yoshimasa:

Quantum GraviElectroDynamics

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: Nguyen Hai Chau: <i>Measurements in quantum mechanics: from decoherence to ultradecoherence.</i>	S2-I3: Park Seong Chan: <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: Tran Minh Hieu: <i>Type-I two Higgs doublet model: data fitting and detection ability.</i>	S2-C1: Do Quoc Tuan: <i>Anisotropic inflation in light of the ACT DR6 data.</i>
S1-C2: Vo Van Thuan: <i>Objective reality in quantum physics.</i>	S2-C2: Kieu Thi Ny: <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**

Darriulat Pierre:

The discoveries of W, Z and Higgs bosons.

- 10:20 - 10:50: Break/Posters.

Parallel sessions 3:

Section 1 (S1):

Quantum physics at small scales.

Section 2 (S2):

Physics at large scales and quantum phenomena

- 10:50 – 11:40: **Invited talks**

S1-I4: Kim Doris:

Recent highlights from Belle and Belle II.

S2-I4: Nguyen Quynh Lan:

Searches for dark matter using gravitational-wave detectors ((of LIGO-Vigo-KAGRA)).

- 11:40 - 12:30: **Invited talks**

S1-I5: Koshio Yusuke:

Physics in Super-Kamiokande and Hyper-Kamiokande.

S2-I5: Kanno Sugumi:

Gravitational quantum effects.

12:30 – 14:00: **LUNCH BREAK**

Parallel sessions 4:

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

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

- 15:35 - 16:00: **Break/Posters.**

Poster sessions:

- 16:00 – 16:45:

Machine gun talks (max: 1min x45 or 1.5min x30)

- 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

Kusenko Alex: <i>Primordial black holes</i>

- 10:20 - 10:50: Break/Posters.

Parallel sessions 5:

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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- 10:50 – 11:40: Invited talks

S1-I7: Nguyen Xuan Dung: <i>Gravitons in fractional quantum Hall: From theory to experiment.</i>	S2-I7: Mukohyama Shinji: <i>Gravity and cosmology beyond general relativity.</i>
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- 11:40– 12:30: Invited talks

S1-I8: Nguyen Quoc Hung: <i>Quantum computation as a tool to study physics.</i>	S2-I8: Pi Shi: <i>Gravitational wave cosmology.</i>
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12:30 – 14:00: **LUNCH BREAK**

Parallel sessions 6:

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

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

<p>S2-I10: Nguyen Nhat Minh: <i>What millions of galaxies have to say.</i></p>
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- 14:50 – 15:35: **Contributed talks** (15 min per talk))

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

- 15:35 – 16:05: **Break/posters**

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

<p>S1-C9: Dao Xuan Viet: <i>Monte Carlo studies of the two-dimensional XY model with four-fold anisotropy.</i></p>	<p>S2-C6: Rakesh K Jha, <i>Four fold path to Thermality: Inequivalent purifications of Rindler wedge</i></p>
<p>S1-C10: Nguyen Hai Phong: <i>Magnetic and magneto-caloric investigation of amorphous systems in the description of disordered Ising model.</i></p>	<p>S2-C7: Kavya N.S.: <i>Can $f(Q)$ gravity alleviate tension?</i></p> <p>S2-C8: Sai Swagat Mishra: <i>Padé cosmography and its insight into teleparallel gravity.</i></p>

<p>S1-C11: Nguyen Duy Huy: <i>Unlocking carbon cluster diversity: A swarm intelligence and machine-learning toolkit.</i></p> <p>S1-C12: Nguyen Thi Hai Yen: <i>Resistivity characteristics near the metal–insulator transition in the half-filled Anderson–Hubbard model.</i></p> <p>S1-C13: Nguyen Hoang Vu: <i>Color superconductivity in general dimension via holography.</i></p>	<p>S2-C9: Neeraj Kumar: <i>Renyi constraints on black hole merger.</i></p> <p>S2-C10: Khalid Sàiullah: <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 $^{11}B(^{10}B, ^9Be)^{12}C$ 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_2 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. **Truong 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.