

National Academy of Sciences of Ukraine  
Bogolyubov Institute for Theoretical Physics  
Young Scientists Council

**XIII Young Scientists Conference**  
**Problems of Theoretical Physics**

**December 21, 2022**  
**Kyiv, Ukraine**

**Program**

# Wednesday, December 21

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**10-00**      **Conference opening**

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## Morning Session

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**10-05**      **Leonas Valkunas**

Lecture      “Coherence and Population Dynamics in Molecular Aggregates and  
Photosynthetic Pigment-Protein Complexes”

*Vilnius University, Lithuania*

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**10-50**      **Musfer Adzhymambetov, Yuri Sinyukov, Sergei Akkelin**

“Does quark-gluon plasma form in proton-proton collisions?”

O.1      *Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine*

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**11-10**      **Vladimir Kuznietsov, Volodymyr Vovchenko, Mark Gorenstein,  
Oleh Savchuk, Volker Koch**

O.2      “Critical point particle number fluctuations from molecular dynamics”

*Taras Shevchenko National University of Kyiv*

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**11-30**      **Yehor Kyselov, Volodymyr Gorkavenko**

“Two methods for computation of the sensitivity region of the intensity  
frontier experiments”

O.3

*Taras Shevchenko National University of Kyiv*

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**11-50**      ***BREAK***

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**12-10**      **Yurii Zhuravlov, Nikolay Iorgov, Olexandr Gamayun**

“On Landauer-Büttiker formalism from a quantum quench”

O.4

*Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine*

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**12-30**      **Denys Savchenko**

“Evidence for the galactic neutrino emission”

O.5

*Astroparticle and Cosmology (APC) laboratory, Paris; Bogolyubov  
Institute for Theoretical Physics of the NAS of Ukraine;  
Kyiv Academic University*

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**12-50**      **Christoph Gärtlein, Violetta Sagun, Oleksii Ivanytskyi,**  
**David Blaschke**

O.6            “Hybrid stars and the properties of the special point”  
*Ludwig Maximilian University of Munich, Germany*

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**13-10**      **Pavlo Panasiuk, Violetta Sagun, Koichi Hamaguchi,**  
**Natsumi Nagata, Oleksii Ivanytskyi**

O.7            “Heating due to a spin-down compression in hybrid stars”  
*Taras Shevchenko National University of Kyiv, Ukraine*

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**13-30**      ***LUNCH***

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**Afternoon Session**

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**14-15**      **Larisa Brizhik**

Lecture      “Davydov's Solitons and their Role in Biological Processes”  
*Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine*

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**15-00**      **Anton Parafilo**

O.8            “Quantum impurity simulator operating in the fractional quantum Hall  
regime”  
*Center for Theoretical Physics of Complex Systems (PCS IBS),  
Daejeon, South Korea*

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**15-20**      **Oleksandr Konstantynov**

O.9            “Convective thermomagnetic effect in normal and superfluid systems”  
*B. Verkin Institute for Low Temperature Physics and Engineering,  
Kharkiv, Ukraine*

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**15-40**      ***BREAK***

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**16-00**      **Pavlo Sukhachov, Leonid Glazman**

O.10          “Anomalous electromagnetic field reflection and transmission in Weyl  
and Dirac semimetals”  
*Yale University, New Haven, USA*

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**16-20**      **Maryna Bakumenko, Dmitry Nerukh, Vitaliy Bardyk**  
“Multiscale hybrid model of liquids: modified equations of motion”  
O.11      *Taras Shevchenko National University of Kyiv; Aston University,  
Birmingham, United Kingdom*

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**16-40**      **Tetiana Bubon**  
“Collective water vibrations in a DNA hydration shell”  
O.12      *Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine*

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**17-00**      **Vladyslav Yakovliev**  
“Pulsed Electrical Field Impact on Cyanide Biodegradation by  
O.13      *Pseudomonas fluorescens*”  
*Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine*

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**17-20**      *Closing of the conference*