



INFORMAL EXCHANGE MEETING.

DESY / EUROPEAN XFEL – NSC KHARKIV INSTITUTE OF PHYSICS AND TECHNOLOGY (KIPT)

Friday, 15 July 2022, 13h (Hamburg, CEST) / 14h (Kharkiv, EEST)

Online Meeting using Zoom:

<https://desy.zoom.us/j/61802140333>

Passcode: 759580

<https://indico.desy.de/e/desy4kipt>

OBJECTIVE

This informal exchange meeting has the goal to further promote support activities for Ukrainian scientists, in particular from the National Science Center Kharkiv Institute of Physics and Technology (NSC KIPT), and to explore potential cooperation areas and projects which could be realized on a mid- and long-term perspective. At the meeting several key scientist and institute leaders from NSC KIPT (and other institutes) will highlight their research activities and propose potential topics for collaboration with DESY/European XFEL.

NSC KIPT (<https://www.kipt.kharkov.ua/>) is the largest institute of the National Academy of Sciences of Ukraine (about 2000 employees). Main activities of the NSC KIPT are concentrated on fundamental and applied problems of theoretical physics, solid-state physics, physics of radiation effects and radiation materials science, plasma physics and controlled fusion, nuclear physics, physics of elementary particles, high-energy physics, reactor physics, perspectives of atomic power, creation of a neutron source based on a subcritical assembly controlled by a high-current electron accelerator, physics of electromagnetic interactions, physics and engineering of electron accelerators, plasma electronics and physics of high-current beams, physics of heavy charged particle accelerators, new methods of acceleration

AGENDA

13:00

Welcome / Opening

- Helmut Dosch, Chair of the Board of Directors at DESY
- Robert Feidenhans'l, Managing Director European XFEL
- Mykola Shul'ga, Academician of the National Academy of Science of Ukraine (NASU), Director General of NSC KIPT

13:20

NSC KIPT - Current Situation and Future Revival – 15+5'

- Mykola Shul'ga, Academician of NASU, Director General of NSC KIPT

Questions

13:40

Session Particle Physics: Theory and Detectors - 2x (7+3)'

- Search for effects of new physics in electron-positron annihilation at the energies of existing and future accelerators
 - Aleksandr KORCHIN, Head of the Department of High Energy Physics of the Akhiezer Institute for Theoretical Physics (AITP) NSC KIPT
- Detectors - Institute of Scintillation Materials of NASU (ISMA NASU)
 - Andrey BOYARINTSEV, Deputy Director of ISMA NANU.

14:00

Session Astrophysics – 2x (7+3)'

- Expected contributions by O.Ya.Usikov Institute for Radiophysics and Electronics NASU (IRE NASU) to the Astroparticle and related research
 - Konstyantyn LUKIN, Director of IRE NASU (Kharkiv), Head of the Laboratory for Nonlinear Dynamics of Electronic Systems
- Institute of Radio Astronomy of NASU (IRA NASU)
 - Vyacheslav ZAKHARENKO, Director IRA NASU

14:20

Session XFEL – (7+3)'

- Kinetics of the relativistic electron beams emitting hard x- and gamma rays
 - Eugene BULYAK, Senior researcher of Institute of High Energy Physics and Nuclear Physics NSC KIPT

14:30

Virtual Break (10')

14:40

Session Accelerator – Topic: crystals (2x 7+3)'

- Deflection of High-Energy Charged Particles by Means of a Bent Crystal
 - Igor KYRYLLIN, Senior researcher of AITP NSC KIPT
- Coherent effects in the ionization loss of high-energy ultrashort electron bunches
 - Sergii TROFYMENKO, Senior researcher of AITP NSC KIPT

15:00

Session Accelerator – Topic: Wakefield accelerator – 3x (7+3)'

- Acceleration and transport of electron/positron bunches in plasma-dielectric wakefield accelerator
 - Gennadii SOTNIKOV, Head of Department at the Institute of Plasma Electronics and New Methods of Acceleration (IPENMA) of NSC KIPT
- Simulation of the high-gradient wakefield excitation by an exawatt laser pulse in metallic-density plasma

- Vasyl MASLOV, Head of Laboratory at IPENMA of NSC KIPT
- QED processes in a field of an intense laser wave
 - Oleksandr NOVAK, senior researcher, Institute of Applied Physics NASU (IAP NASU, Sumy)

15:30

General Discussions and Wrap-up

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