Synchrotron and Free electron laser Radiation:
generation and application (SFR-2022)
Budker INP, Novosibirsk
June 27 – 30, 2022

Conference Programme

ZOOM session for all days: https://us06web.zoom.us/j/81710231154

Monday 27 June 2022

9:00 – 10:00 Регистрация

10:00 – 12:10 Conference opening, Session "SR and FEL sources: Plenary 1"

Conveners: Nikolay Vinokurov; Konstantin Zolotarev

10:00 Welcome speech by SSRC Director academician Gennady N. KULIPANOV

10:10 Ускорительный комплекс СКИФ и общий статус проекта. Е.Б. Левичев

10:30 Synchrotron radiation application in the BINP. ZOLOTAREV, Konstantin

10:50 MOLECULAR STRUCTURAL DYNAMICS STUDY USING TIME-RESOLVED DIFFRACTION #110 Key Young Oang -(Remotely by ZOOM)-

11:10 EXPERIMENTS ON THE SHORT X-RAY PULSE GENERATION AT THE NOVOFEL FACILITY #97 Yaroslav Getmanov

11:30 Перспективы развития синхротронных исследований в ДВФО. Ю.Н. Кульчин

11:50 STATUS OF WORK ON CREATION SUPERCONDUCTING INSERTION DEVICES FOR SYNCHROTRON RADIATION GENERATION ON SKIF SYNCHROTRON LIGHT FACILITY #100 Vitaliy Shkaruba

12:10 Review of experiments at the synchrotron radiation in the high-energy X-ray range on VEPP-4M storage ring. K.E. Kuper

12:30 – 12:40 Group photo (главный вход в ИЯФ)

12:40 – 14:00 Lunch, free time

14:00 – 18:20 Session "SR and FEL sources and centers: Plenary 2"

Conveners: Nikolay Vinokurov; Konstantin Zolotarev

14:00 Источники синхротронного излучения и рентгеновские лазеры на свободных электронах. А. Е. Благов

14:20 Источник синхротронного излучения четвертого поколения с рентгеновским лазером на свободных электронах «СИЛА»: концепция ускорительно-накопительного комплекса. Р. А. Сенин

14:40 25 YEARS OF X-RAY REFRACTIVE OPTICS DEVELOPMENT – NEW OPPORTUNITIES FOR COHERENCE RELATED APPLICATIONS #143 A. Snigirev

15:00 THE SMALL-ANGLE SCATTRING BEAMLINE AT THE KURCHATOV SYNCHR. RAD. SOURCE - STATUS AND LATEST RESULTS #22 Georgy Peters -(Remotely by ZOOM)-

15:20 Модернизация Курчатовского источника синхротронного излучения. В. Н. Корчуганов

15:40 ФОТОИНЖЕКТОРНЫЙ КОМПЛЕКС ИПФ РАН: РАСЧЕТНЫЕ ПАРАМЕТРЫ И ТЕКУЩАЯ СТАДИЯ РАЗРАБОТКИ #89 Nikolai Peskov

16:00 4TH GENERATION SYNCHROTRON RADIATION FACILITY SKIF: SCIENTIFIC PROGRAM AND FUNCTIONALITY OF THE FIRST-PHASE BEAMLINES #149 Zubavichus Y.V.

16:20 – 16:40 Coffee break

16:40 – 16:00 SR technological application and X-ray apparatus

Conveners: Anton Nikolenko; Konstantin Kuper

16:40 INVESTIGATION OF "DUSTING" USING SYNCHROTRON RADIATION #7 K. Ten

17:00 ПРИМЕНЕНИЕ LIGA-РАСТРОВ ДЛЯ ФИЛЬТРАЦИИ РАССЕЯННОГО ИЗЛУЧЕНИЯ В ДЕНТАЛЬНОЙ РЕНТГЕНОГРАФИИ #11 Evgeny Iv. Palchikov

17:20 FINE CRYSTAL STRUCTURE, SPECTRAL PROPERTIES AND MICROMORPHOLOGY OF FILMS OF ENERGY-INTENSIVE COMPOUNDS OBTAINED BY CRYSTALLIZATION FROM THE GAS PHASE ON VARIOUS SUBSTRATES #38 Aleksandr Stankevich

17:40 SOFT X-RAY SR STATION «KOSMOS» AT THE VEPP-4 STORAGE RING: STATUS AND XAFS APPLICATIONS. #117 Anton Nikolenko

18:00 COHERENT X-RAY BEAM-EXPANDER FOR ADVANCED LIGHT SOURCES #122 Zverev Dmitrii

18:20 Оборудование и испытательные стенды для исследования свойств материалов на синхротронном излучении (СИ). Александр Долгих, ООО «Мелитэк».

19:00 – 21:00 Фуршет (столовая ИЯФ)

Tuesday 28 June 2022

10:00 – 12:00 THz radiation application

Conveners: Vasily Gerasimov; Vitaly Kubarev

10:00 COMMISSIONING OF THE FIRST FEL WITH VARIABLE-PERIOD UNDULATOR #86 Oleg Shevchenko

10:30 NOVEL EXPERIMENTS ON THZ PLASMONICS USING NOVOSIBIRSK FREE ELECTRON LASER #32 Vasily Gerasimov

11:00 COMPARISON OF DIFFERENT APPROACHES FOR DEVELOPMENT OF TERAHERTZ FOCUSING OPTICS #81 Vladimir Pavelyev

11:20 ТЕРАГЕРЦОВЫЙ ЛАЗЕР НА СВОБОДНЫХ ЭЛЕКТРОНАХ С ЭЛЕКТРОДИНАМИЧЕСКОЙ СИСТЕМОЙ, ОСНОВАННОЙ НА ВОЗБУЖДЕНИИ СУПЕРМОД ТАЛЬБОТ-ТИПА #91 Andrei Savilov

11:40 THE POSSIBILITY OF CONTROL OF THE PHASE OF OPTICAL FIELD IN MAGNETIC FIELD #77 Evgeniy Chesnokov

12:00 – 14:00 Lunch, free time

14:00 – 16:20 THz radiation aplication

Conveners: Vasily Gerasimov; Vitaly Kubarev

14:00 КИЛОАМПЕРНЫЙ ЭЛЕКТРОННЫЙ ПУЧОК ЛИНЕЙНОГО ИНДУКЦИОННОГО УСКОРИТЕЛЯ КАК ДРАЙВЕР ДЛЯ СУБМИЛЛИМЕТРОВОГО ЛСЭ #150 Е.С. Сандалов

14:20 TERAHERTZ GHOST IMAGING WITH SPECKLED LIGHT USING NOVOSIBIRSK FREE ELECTRON LASER RADIATION #54 Ildus Khasanov

14:40 PLASMA DISCHARGE IN A NON-UNIFORM GAS FLOW, SUSTAINED BY THE POWERFUL RADIATION OF NOVOSIBIRSK FREE ELECTRON LASER, AS A POINT-LIKE SOURCE OF VACUUM ULTRAVIOLET RADIATION #76 Alexander Sidorov

15:00 DEVELOPMENT AND CHARACTERIZATION OF IMPULSE THZ HEATING METHOD USING EPR OF MAGNETOACTIVE COMPOUNDS #78 Sergey Tumanov

15:20 ТЕРАГЕРЦОВЫЕ ГИРОТРОНЫ С ПРИОСЕВЫМИ ЭЛЕКТРОННЫМИ ПУЧКАМИ НА ВЫСОКИХ ЦИКЛОТРОННЫХ ГАРМОНИКАХ ДЛЯ ФИЗИЧЕСКИХ ПРИЛОЖЕНИЙ #103 Andrei Savilov

15.40 ЭЛЕКТРОДИНАМИЧЕСКАЯ СИСТЕМА МОЩНОГО ТГЦ ЛСЭ НА ОСНОВЕ ЛИНЕЙНОГО ИНДУКЦИОННОГО УСКОРИТЕЛЯ «ЛИУ»: МОДЕЛИРОВАНИЕ И «ХОЛОДНЫЕ» ТЕСТЫ #90 Nikolai Peskov

16:00 THZ REFRACTOMETRY OF METAL SURFACES VIA SURFACE PLASMON INTERFEROMETRY ON THE NOVOSIBIRSK FREE ELECTRON LASER #15 V Gerasimov

16:20 – 16:40 Coffee break

16:40 – 18:00 Poster Session

Wednesday 29 June 2022

Conveners: Boris Tolochko; Marat Sharafutdinov

09:00 – 12:00 X-ray structural analysis

9:00 статус экспериментов ИГИЛ СО РАН с использованием синхротронного излучения ВЭПП-3/ВЭПП-4. Э.Р. Прууэл

9:30 MICROSTRIP SILICON DETECTOR FOR STUDY OF ULTRA-FAST PROCESSES AT THE SYNCHROTRON RADIATION BEAM #39 Lev Shekhtman

10:00 Многоэлементные сенсоры ионизирующего излучения на основе арсенида галлия, компенсированного хромом. Тяжев Антон

10:30 DEVELOPMENT OF A ONE-DIMENSIONAL COUNTING DETECTOR FOR DIFFRACTION EXPERIMENTS AT A SYNCHROTRON RADIATION BEAM #19 Anastasia Glushak

10:45 – 11:00 Coffee break

11:00 GENERATION OF NEAR-INFRARED RADIATION HARMONICS BASED ON REGULAR POLYMER MATRICES WITH CONE AND CYLINDRICAL PORE GEOMETRY AND COATINGS APPLIED ON THEM. #66 Victor Asadchikov.

11:30 REACTIVE SPS OF AL2O3−CE:(Y,GD)AG COMPOSITE CERAMICS: APPROACH OPTIMIZATION BY SR XRD INVESTIGATIONS #20 Alexey Zavjalov

11:45 ИССЛЕДОВАНИЕ УСЛОВИЙ ФОРМИРОВАНИЯ A2-ФАЗЫ В МЕХАНОКОМПОЗИТАХ СИСТЕМЫ TI-AL МЕТОДАМИ СИНХРОТРОННОГО ИЗЛУЧЕНИЯ #139 Alexey Sobachkin

12:00 ON THE FEATURES OF AN IMMISCIBLE AU-CO ALLOY OBTAINED BY MECHANICAL ALLOYING UNDER VARIOUS CONDITIONS USING SR #128 Timofey Tolmachev

12:15 IN-SITU STUDY OF STRUCTURAL CHANGES DURING HEATING OF HAp NANOCOMPOSITES MODIFIED BY TiOy #4 Danil Eselevich

12:30 ON THE PHASE CONSTITUTION OF AL - BASED METALLIC-INTERMETALLIC LAMINATE (MIL) COMPOSITES #26 Yulia Emurlaeva

12:45 ANALYSIS OF THE EVOLUTION OF DISLOCATION STRUCTURE OF POLYCRYSTALLINE MATERIALS BY USING SYNCHROTRON X-RAY DIFFRACTION #43 Ivan Ivanov

13:00 – 14:00 Lunch, free time

14:00 – 16:00 X-ray structural analysis

14:00 Эксперименты РФЯЦ ВНИИТФ с использованием синхротронного излучения ВЭПП-3/ВЭПП-4. Е.Б. Смирнов -(Remotely by ZOOM)-

14:30 COMPRESSIBILITY, POLYMORPHISM AND STABILITY OF THE HIGH-PRESSURE K-CA CARBONATES AS PART OF THE DEEP CARBON CYCLE #10 Anna Likhacheva

14:45 КОМПЛЕКСНОЕ СТРУКТУРНОЕ IN SITU ИССЛЕДОВАНИЕ ND1.6CA0.4NI1-YCUYO4+Δ (Y = 0.0-0.4) С ПРИМЕНЕНИЕМ ПОРОШКОВОЙ РЕНТГЕНОВСКОЙ И НЕЙТРОННОЙ ДИФРАКЦИИ В СРЕДАХ С РАЗЛИЧНЫМ ПАРЦИАЛЬНЫМ ДАВЛЕНИЕМ КИСЛОРОДА. #14 Denis Mishchenko

15:00 STRUCTURAL-PHASE TRANSFORMATIONS AT THE INTERFACE OF METALS UPON FRICTIONAL LOADING: OBSERVATIONS USING SR DIFFRACTION #47 Kemal Emurlaev

15:15 APPLICATION OF HIGH-ENERGY X-RAYS AND ATOMIC PAIR DISTRIBUTION FUNCTION ANALYSIS TO STRUCTURAL DIAGNOSTICS OF CATALYSTS #55 Vera Pakharukova

15:30 STUDY OF EXTREME HYDRODYNAMIC PHENOMENA IN LASER PLASMA BY ULTRA-HIGH RESOLUTION COHERENT X-RAY RADIOGRAPHY #68 Sergey Makarov

15:45 CRYSTAL STRUCTURE ANALYSIS OF NICKEL-BASED CATALYSTS #69 Maxim Mikhnenko

16:00 – 16:20 Coffee break

16:20 – 18:00 X-ray structural analysis

16:20 STRUCTURAL ANALYSIS OF THROMBIN-BINDING G-QUADRUPLEX APTAMERS BY SAXS METHOD #70 Polina Nikolaeva

16:35 APPLICATION OF SYNCHROTRON RADIATION FOR IN SITU XRD INVESTIGATION OF

THERMO-STIMULATED DECAY OF MAGNESIUM HYDRIDES #63 Viktor Kudiiarov

16:50 ОДНОЭЛЕМЕНТНЫЙ ШИРОКОПОЛОСНЫЙ МОНОХРОМАТОР НА ОСНОВЕ ПЛОСКОЙ VLS-РЕШЕТКИ #73 Evgenii Ragozin

17:05 HIGH-TEMPERATURE IN SITU SYNCHROTRON XRD STUDY OF CR/MO-COATED ZR-1NB ALLOY #31 Maxim Syrtanov

17:20 FLAT-FIELD CORRECTION ON X-RAY TOMOGRAPHIC IMAGES USING DEEP CONVOLUTIONAL NEURAL NETWORKS. #24 Artem Grigorev

17:35 NEURAL NETWORK MODELS FOR WORK WITH TOPOGRAPHIC DATA #42 Andrey Yamaev

Thursday 30 June 2022

10:00 – 12:00 X-ray fluorescent analysis and X-ray spectroscopy

Conveners: Vladimir Kriventsov; Rishat Valeev

10:00 CURRENT STATUS OF EXAFS STATION OF SSTRC. USING XAFS SPECTROSCOPY FOR THE STUDY OF NANOMATERIALS OF COMPLEX COMPOSITION #136 Vladimir Kriventsov, invited

10:20 SR X-RAY LUMINESCENCE, XANES AND IN SITU HEATING XRD OF SRTIO3−TIO2 COMPOSITE CERAMICS AS PROMISING THERMOELECTRIC MATERIAL #13 Alexey Zavjalov

10:40 COMPLEX STUDY OF LOOSE CAVE SEDIMENTS OF THE CENTRAL ASIAN REGION USING XRF SR #34 Julia Sholokhova -(Remotely by ZOOM)-

11:00 SPIN-ORBIT INTERACTION IN OSMIUM COMPLEXES #9 Igor Asanov

11:20 TIO2- AND G-C3N4-BASED PHOTOCATALYSTS FOR CO2 REDUCTION: XAS STUDY #88 Andrey Saraev

11:40 PHOTOCHEMICAL BEHAVIOR AND EFFECT OF NOX ON FLUORINATED GRAPHITE USING A WHITE-BEAM SYNCHROTRON RADIATION #65 Galina Semushkina

12:00 – 14:00 Lunch, free time

14:00 – 16:00 SR for medicine and biology application

Conveners: Konstantin Zolotarev

14:00 Использование РФА-СИ в палеореконструкциях и биоиндикации экологического статуса ихтиофауны, Федотов А.П. -(Remotely by ZOOM)-

14:20 HIGH-RESOLUTION SYNCHROTRON X-RAY PHASE-CONTRAST TOMOGRAPHY STUDIES OF THE POST MORTEM HUMAN PINEAL GLAND #25 Yuri Krivonosov

14:40 X-RAY STUDIES OF CONCREMENTS IN THE CHOROID PLEXUS AND PINEAL GLAND OF THE HUMAN BRAIN #23 Denis Zolotov -(Remotely by ZOOM)-

15:00 SMART TOMO ENGINE NOVEL TOMOGRAPHY RECONSTRUCTION TOOL #28 Mikhail Shutov

15:20 SYNCHROTRON BASED X-RAY FLUORESCENCE MICROSCOPY FOR STUDYING SODIUM DEPOSITS IN CARDIAC AND STRIATED MUSCLES #41 Igor Artyukov

15:40 A MULTISCALE STUDY OF THE STRUCTURE OF POLYLACTIDES USING SYNCHROTRON X-RAY MICROTOMOGRAPHY AND LABORATORY TECHNIQUES #64 Alexey Buzmakov

16:00 – 16:20 Coffee break

16:20 – 18:40 X-ray fluorescent analysis and X-ray spectroscopy

Conveners: Vladimir Kriventsov; Rishat Valeev

16:20 "XANES Spectroscopy – a tool for the nano world" Alexander Soldatov, invited -(Remotely by ZOOM)-

16:40 "Spectromicroscopy of functional materials in the ultra-soft X-ray region of synchrotron radiation". Sergey Turishchev, invited -(Remotely by ZOOM)-

17:00 ANALYTICAL MICROSTRATIGRAPHY OF THE BOTTOM SEDIMENTS OF LAKE NIZHNEE MULTINSKOE USING SCANNING MICRO-XRF ON SR BEAMS #85 Andrey Darin

17:20 SPECTROSCOPIC (XAFS AND XPS) INVESTIGATIONS OF NANOCOATINGS DEPOSITED ON THE SURFACE OF POROUS ALUMINA #107 Rishat Valeev

17:40 FEATURES OF XANES Cl K- AND X-RAY EMISSION Cl Kβ SPECTRA OF {OsCl6}2- COMPOUNDS WITH A STRONG SPIN-ORBIT INTERACTION DEPENDING ON THE STRUCTURE OF CATIONS #141 Anastasiya Fedorenko

18:00 COMPLEX STUDY OF LOCAL ATOMIC STRUCTURE OF PROMISING TI-POWDERS #120 Igor Averkiev

18:20 STRUCTURE STUDY OF IRON-SUBSTITUTED HYDROXYAPATITE BY SPECTROSCOPIC METHODS #140 Denis Isaev

18:40 Закрытие конференции

Постерная сессия. Вторник, 28 июня, 16:40 – 18:00

Track, Paper tytle, paper ID, author	№ стенда
Track: X-ray spectroscopy	
RADIOLUMINESCENCE AND OPTICAL PROPERTIES OF NON-RADIOACTIVE SYNTHESIZED POLYMETHYLMETHACRYLATE #1 Submitted by Gleb Lyubas	**1**
ИССЛЕДОВАНИЕ СПЕКТРОВ ИЗЛУЧЕНИЯ ПЛАЗМЫ, СОЗДАВАЕМОЙ МОЩНЫМИ ПИКОСЕКУНДНЫМИ ЛАЗЕРНЫМИ ИМПУЛЬСАМИ, В ДИАПАЗОНЕ ДЛИН ВОЛН 6-14 Å #33 Submitted by Dmitry Nosulenko	**2**
АТОМАРНАЯ СТРУКТУРА АКТИВНЫХ ЦЕНТРОВ CU/ZSM-5 КАТАЛИЗАТОРОВ СЕЛЕКТИВНОГО ОКИСЛЕНИЯ МЕТАНА: EXAFS ИССЛЕДОВАНИЕ #44 Submitted by Egor Aydakov	**3**
CONDUCTION BAND ELECTRONIC STRUCTURE FEATURES OF MANGANESE SULFIDE SOLID SOLUTIONS DOPED WITH LANTHANIDES #92 Submitted by Mikhail Syrokvashin	**4**
CU/TIO2 ФОТОКАТАЛИЗАТОРЫ ПОЛУЧЕНИЯ ВОДОРОДА: РФЭС И XANES ИССЛЕДОВАНИЕ #93 Submitted by Andrey Saraev	**5**
THE ELECTRONIC STRUCTURE AND SEEBECK COEFFICIENT OF VANADIUM-DOPED COPPER-CHROMIUM DISULFIDES #99 Submitted by Evgeniy Korotaev	**6**
RESONANCE EFFECTS IN PHOTOEMISSION SPECTROSCOPY OF RARE-EARTHS IN INTERMETALLIC COMPOUNDS LA1-XTBXMN2SI2 (X = 0, 0.27) #102 Submitted Ekaterina Ponomareva	**7**
ANALYSIS OF THE LOCAL ATOMIC STRUCTURE OF TIO2 BY SPECTROSCOPY OF EXTENDED ELECTRON ENERGY LOSS FINE STRUCTURE #104 Submitted by Olga Bakieva	**8**
SPECTROSCOPIC INVESTIGATIONS OF IRON OXIDE NANOCOATINGS ON THE SURFACE OF POROUS ALUMINA OBTAINED BY THE AIR OXIDATION OF MAGNETRON DEPOSITED IRON FILMS #108 Submitted by Rishat Valeev	**9**
ELECTRONIC STRUCTURE WITH SB SUBSTITUTION IN TOPOLOGICAL INSULATORS MNBI2-XSBXTE4 USING SYNCHROTRON RADIATION #134 Submitted by Igor Arkhandeev	**10**
INVESTIGATION OF THE THIACALIX[4]ARENES ELECTRONIC STRUCTURE AND FEATURES BY RAS, RES, XPS AND QUANTUM CHEMISTRY METHODS AND THEIR SENSORY RESPONSE IN HYBRID MATERIALS WITH CARBON NANOTUBES #27 Submitted by Svetlana Lavrukhina	**11**
SPECTROSCOPIC AND CORROSION STUDIES OF THE TITANIUM LAYERS OBTAINED BY NON-VACUUM ELECTRON-BEAM ALLOYING FOR CHEMICAL REACTOR MATERIALS APPLICATION #142 Submitted by Denis Isaev	**12**
Track: SR and FEL sources and centers	
ВХОДНОЙ КОНТРОЛЬ ВОЛЬТАМПЕРНЫХ ХАРАКТЕРИСТИК КОМПОЗИЦЫОННЫХ ПРОВОДНИКОВ НА ОСНОВЕ Nb-Ti СПЛАВОВ ПРИ ТЕМПЕРАТУРЕ ЖИДКОГО ГЕЛИЯ #2 Submitted by Alexandr Brodnikov	**13**
ON APPLICATIONS OF ULTRASHORT PULSES X-RAY PULSES GENERATED BY THE INVERSE COMPTON SCATTERING #8 Submitted by Ruslan Feshchenko	**14**
THE LUMPED UHV PUMPS ON BASED NON-EVAPORABLE GETTERS #12 Submitted by Alexey Semenov	**15**
STRETCHED WIRE SAG MINIMIZATION FOR DIRECT CURRENT MAGNETIC MEASUREMENTS METHOD FOR SUPERCONDUCTING INSERTION DEVICES #51 Submitted by Artem Zorin	**16**
MEASUREMENTS OF UNDULATOR AND LASER RADIATION PARAMETERS OF THE NOVOSIBIRSK FEL FACILITY #58 Submitted by Vladislav Borin	**17**