

**LIST OF THEMES AND PROJECTS
PROPOSED BY THE LABORATORIES FOR INCLUSION IN
THE JINR TOPICAL PLAN OF RESEARCH FOR 2022**

The total number of themes in the 2021 Topical Plan is 42,
including 7 themes and 21 projects concluding in the year 2021.

Theoretical Physics (01)

No№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory
1.	BLTP	01-3-1135-2019/2023 Fundamental Interactions of Fields and Particles	I	D. Kazakov O. Teryaev	
2.	BLTP	01-3-1136-2019/2023 Theory of Nuclear Systems	I	N. Antonenko S. Ershov A. Dzhoiev	
3.	BLTP	01-3-1137-2019/2023 Theory of Complex Systems and Advanced Materials	I	V. Osipov A.M. Povolotskii	
4.	BLTP	01-3-1138-2019/2023 Modern Mathematical Physics: Gravity, Supersymmetry and Strings	I	A. Isaev S. Krivonos A. Sorin <i>Scientific leader:</i> A. Filippov	
5.	BLTP	01-3-1117-2014/2023 Dubna International Advanced School of Theoretical Physics (DIAS-TH)	I	V. Voronov A. Sorin <i>DIAS-TH Rector:</i> A. Filippov	

Elementary Particle Physics and Relativistic Nuclear Physics (02)

No№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory	
6.	DLNP	02-2-1123-2015/2022 Study of Fundamental Interactions in e^+e^- Collisions	I	A. Zhemchugov <i>Deputy:</i> A. Guskov		
		BES-III (2007–2022)	2	A. Zhemchugov		
		ARIEL: Physics at future e^+e^- colliders (2019–2021)	3	L. Kalinovskaya		To close the Project.
7.	All-JINR theme	02-0-1081-2009/2024 ATLAS. Upgrade of the ATLAS Detector and Physics Research at the LHC	I	V. Bednyakov <i>Deputy:</i> E. Khramov A. Cheplakov		
		ATLAS. Physics (2010–2023)	1	E. Khramov		
		Upgrade of the ATLAS detector (2013–2023)	1	A. Cheplakov		
8.	DLNP	02-2-1144-2021/2023 Search for new physics in the charged lepton sector	I	V. Glagolev Z. Tsamalaidze		
		Search for new physics in the charged lepton sector (2021–2021)	1	V. Glagolev Z. Tsamalaidze		To extend the project until the end of 2024 with first priority.
		New project T2K-II / Hyper-Kamiokande (2022–2024)	1	V. Glagolev		To open the new project until the end of 2024 with first priority.

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9.	DLNP	02-2-1099-2010/2023 Study of Neutrino Oscillations	1	D. Naumov A. Olshevskiy	
		Recommendation of the joint session of the PAC NP and the PAC PP of January 2019: Daya Bay/JUNO (2009–2023) to assign category "A" to the project.	1	D. Naumov	
		NovA/DUNE (2015–2023) to assign category "A" to the project.	1	A. Olshevskiy	
10.	All-JINR theme	02-0-1108-2011/2021 Experiment PANDA at FAIR	1	G. Alexeev <i>Deputy:</i> A. Skachkova	To extend the theme until the end of 2024 with Priority I.
		New project Experiment PANDA at FAIR (2022–2024) Recommendation of the PAC for the PP, 54th meeting: JINR's participation in the project for the period 2022–2024.		G. Alexeev <i>Deputy:</i> A. Skachkova	To open the new project until the end of 2024 with first priority.
11.	DLNP	02-2-1125-2015/2023 Astrophysical Studies in the Experiment TAIGA	1	A. Borodin <i>Deputy:</i> L. Tkatchev	
		TAIGA (2015–2023) Recommendation of the joint session of the PAC NP and the PAC PP of January 2019: to assign category "B" to the project.	1	A. Borodin	
12.	VBLHEP	02-1-1106-2011/2022 Investigations of Compressed Baryonic Matter at the GSI Accelerator Complex	1	V. Ladygin V. Ivanov <i>Deputy:</i> O. Derenovskaya	
		CBM (2011–2021) Recommendation of the PAC for the PP, 54th meeting: to continue participation in the project until the end of 2025	1	V. Ladygin V. Ivanov	
		HADES (2010–2021)	2	V. Ladygin O. Fateev	
13.	VBLHEP	02-1-1096-2010/2022 Study of Rare Charged Kaon Decays and Search for Dark Sector in Experiments at the CERN SPS	1	V. Kekelidze Yu. Potrebenikov <i>Deputy:</i> D. Peshekhonov	
		NA62 (2010–2021)	1	V. Kekelidze Yu. Potrebenikov	
		NA64 (2017–2023) Recommendation of the joint session of the PAC NP and the PAC PP of January 2019: to assign category "B" to the project.	1	V. Matveev D. Peshekhonov	
14.	All-JINR theme	02-0-1083-2009/2022 CMS. Compact Muon Solenoid at the LHC	1	V. Karjavin <i>Scientific leader:</i> I. Golutvin	
		CMS (2010–2023)	1	V. Karjavin I. Golutvin	
		New project Upgrade of the CMS detector (2022–2026)	1	V. Karjavin I. Golutvin	

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15.	All-JINR theme	02-0-1085-2009/2022 Studies of the Nucleon and Hadron Structure at CERN COMPASS-II (2011–2022)	1 1	A. Nagaytsev <i>Deputy:</i> A. Guskov A. Nagaytsev	
16.	VBLHEP	02-1-1086-2009/2023 Strangeness in Hadronic Matter and Study of Inelastic Reactions Near Kinematical Borders HyperNIS (2010–2021)	1 1	E. Strokovsky E. Kokoulina D. Krivenkov E. Strokovsky J. Lukstins D. Krivenkov	To close the Project.
17.	All-JINR theme	02-0-1065-2007/2023 NICA Complex: Design and Construction of the Complex of Accelerators, Collider and Physics Experimental Facilities at Extracted and Colliding Ion Beams Aimed at Studying Dense Baryonic Matter and the Spin Structure of Nucleons and Light Ions, and at Carrying out Applied and Innovation Projects Nuclotron-NICA (2011–2021) Recommendation of the PAC for the PP, 54th meeting: to continue the project until the end of 2023. BM@N (2012–2021) Subproject SRC: “Probing short-range correlations” (2018–2021) MPD (2011–2025) Development of the CDR and TDR for the SPD detector at the NICA collider (2020–2021) Recommendation of the PAC for the PP, 54th meeting: designate an appropriate advisory committee for subsequent development of TDR for the SPD.	1 1 1 1 1 1	V. Kekelidze A. Sorin G. Trubnikov <i>Deputy:</i> A. Butenko V. Golovatyuk M. Kapishin A. Butenko G. Khodzhibagiyev <i>Scientific leader:</i> I. Meshkov M. Kapishin M. Kapishin E. Piasetzky <i>Deputies:</i> O. Hen T. Aumann V. Golovatyuk V. Kekelidze A. Guskov <i>Deputy:</i> V. Ladygin	To extend the project until the end of 2023 with first priority. To extend the project until the end of 2026 with first priority.
18.	All-JINR theme	02-1-1127-2016/2023 Advanced Studies on Systems of New-Generation Accelerators and Colliders for Fundamental and Applied Research Precision laser metrology for accelerators and detector complexes (2016–2021)	1 2	G. Shirkov <i>Deputy:</i> J. Budagov J. Budagov	To extend the project until the end of 2023 with first priority.
19.	VBLHEP	02-1-1097-2010/2021 Study of Polarization Phenomena and Spin Effects at the JINR Nuclotron-M Facility ALPOM-2 (2010–2021) DSS (2010–2021)	1 1 1	N. Piskunov <i>Deputies:</i> V. Ladygin M. Finger (Jr.) R. Shindin N. Piskunov V. Ladygin M. Janek K. Sekiguchi	To extend the theme until the end of 2023 with Priority I. To extend the project until the end of 2023 with first priority. To extend the project until the end of 2024 with first priority.

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20.	VBLHEP	02-1-1087-2009/2023 Research on Relativistic Heavy and Light Ion Physics. Experiments at the Accelerator Complex Nuclotron-NICA at JINR and CERN SPS	1	A. Malakhov <i>Deputy:</i> S. Afanasiev	To extend the project until the end of 2024 with first priority. To open the new project until the end of 2023 with first priority.
		NA61 (2012–2021)	2	A. Malakhov	
		SCAN-3 (2017–2022) New project BECQUEREL Recommendation of the PAC for the NP, 53th meeting: to assign category “C” to the project.	1	S. Afanasiev P. Zarubin	
21.	All-JINR theme	02-0-1066-2007/2023 Investigation of the Properties of Nuclear Matter and Particle Structure at the Collider of Relativistic Nuclei and Polarized Protons	1	R. Lednický Yu. Panebratsev	To extend the project until the end of 2024 with first priority.
		STAR (2010–2021)	1	Yu. Panebratsev R. Lednický	
22.	VBLHEP	02-1-1088-2009/2022 ALICE. Study of Interactions of Heavy Ion and Proton Beams at the LHC	1	A. Vodopyanov	
		ALICE (2010–2023)	1	A. Vodopyanov	
23.	VBLHEP	02-1-1107-2011/2021 Development and Construction of the Prototype of a Complex for Radiotherapy and Applied Research with Heavy-Ion Beams at the Nuclotron-M	1	S. Tyutyunnikov <i>Deputy:</i> A. Baldin	To extend the theme until the end of 2023 with Priority I.
		E&T&RM (Energy & Transmutation, radiation materials science) (2018–2020) Recommendation of the PAC for the NP, 53th meeting: submit an updated project at the next session. To assign category “B” to the project.	1	S. Tyutyunnikov	To extend the project until the end of 2023 with first priority.

Nuclear Physics (03)

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24.	All-JINR theme	03-0-1129-2017/2021 Development of the FLNR Accelerator Complex and Experimental Setups (DRIBS-III)	1	G. Gulbekyan S. Dmitriev M. Itkis <i>Scientific leader:</i> Yu. Oganessian	To extend the theme until the end of 2023 with Priority I. Theme leaders: I. Kalagin S. Dmitriev S. Sidorchuk <i>Scientific leader:</i> Yu. Oganessian
		Construction of a prototype of the initial section of a high-current heavy-ion linear accelerator aimed at producing intense radioactive ion beams for basic research (2020–2021)	1	L. Grigorenko T. Kulevoy	To close the Project.
25.	FLNR	03-5-1130-2017/2021 Synthesis and Properties of Superheavy Elements, the Structure of Nuclei at the Limits of Nucleon Stability	1	M. Itkis <i>Scientific leader:</i> Yu. Oganessian	To extend the theme until the end of 2023 with Priority I. Theme leaders: M. Itkis S. Sidorchuk <i>Scientific leader:</i> Yu. Oganessian

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26.	DLNP	03-2-1100-2010/2021 Non-Accelerator Neutrino Physics and Astrophysics	1	E. Yakushev A. Kovalik	To extend the theme until the end of 2024 with Priority I.
		Recommendation of the joint session of the PAC NP and the PAC PP of 21.01.2021:			
		SuperNEMO (2013–2021) continue the project in 2022-2024, to assign category "B" project.	1	O. Kochetov	To extend the project until the end of 2024 with first priority.
		GEMMA-III (vGeN) (2010–2021) continue the project in 2022-2024, to assign category "B" to the project.	1	A. Lubashevskiy	To extend the project until the end of 2024 with first priority.
		EDELWEISS-II (2010–2021) continue the project in 2022-2024, to assign category "A" to the project.	1	E. Yakushev	To extend the project until the end of 2024 with first priority.
		G&M (GERDA) (2010–2021) continue the project in 2022-2024, to assign category "A" to the project.	1	K. Gusev	To extend the project until the end of 2024 with first priority.
		DANSS (2011–2021) continue the project in 2022-2024, to assign category "A" to the project.	1	Yu. Shitov	To extend the project until the end of 2024 with first priority.
27.	FLNP	BAIKAL (2009–2023) Recommendation of the joint session of the PAC NP and the PAC PP of January 2019: to assign category "A" to the project.	1	I. Belolapnikov	
		MONUMENT (2021-2023)	1	D. Zinatulina	
		03-4-1128-2017/2022 Investigations of Neutron Nuclear Interactions and Properties of the Neutron	1	E. Lychagin <i>Deputies:</i> Yu. Kopatch P. Sedyshev	
		TANGRA (2014–2022)	1	Yu. Kopatch	
		New project Modernization of the EG-5 accelerator and its experimental infrastructure" (Modernization of the EG-5 accelerator) (2022–2022) Recommendation of the PAC for the NP, 53th meeting: opening in 2022 the new project for one year. The project can be continued for two more years depending on the available funding. To assign category "B" to the project.		A.S.Doroshkevich	To open the new project until the end of 2022 with first priority.
		New project Investigations of Prompt Fission Neutron Emission in Fission (ENGRIN) (2022–2023)		Sh. Zeynalov <i>Deputy:</i> L. Mitsyna	To open the new project until the end of 2023 with first priority.

Condensed Matter Physics, Radiation and Radiobiological Research (04)

№№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory
28.	FLNP	04-4-1142-2021/2025 Investigations of Functional Materials and Nanosystems by Neutron Scattering Methods	1	D. Kozlenko V. Aksenov A. Balagurov	
		Development of an Inelastic Neutron Scattering Spectrometer in Inverse Geometry at the IBR 2 Reactor (2021–2023) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to assign category "A" to the project.	1	D. Chudoba	

№№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory
29.	FLNP	04-4-1105-2011/2022 Development of the IBR-2 Facility with a Complex of Cryogenic Neutron Moderators Construction of a complex of cryogenic moderators at the IBR-2 facility (2014–2022) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to shift the final decision on the project category to June 2021.	I 1	A. Vinogradov A. Belushkin A. Dolgikh K. Mukhin	
30.	FLNP	04-4-1143-2021/2025 Scientific and methodological research and developments for condensed matter investigations with IBR-2 neutron beams Construction of a wide-aperture backscattering detector (BSD) for the HRFD diffractometer (2021–2023) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to assign category "A" to the project.	I 1	V. Bodnarchuk V. Prikhodko V. Molkov	
31.	FLNP	04-4-1133-2018/2023 Modern Trends and Developments in Raman Microspectroscopy and Photoluminescence for Condensed Matter Studies Raman microspectroscopy in biomedical studies (Biophotonics) (2021–2023) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to assign category "A" to the project.	I 1	G. Arzumanyan N. Kučerka G. Arzumanyan N. Kučerka Deputy: K. Mamatkulov	
32.	FLNP	04-4-1140-2020/2022 Development of the Conceptual Design of a New Advanced Neutron Source at JINR		V. Shvetsov	
33.	FLNP	04-4-1141-2020/2022 Development of the SOLCRYS Structural Research Laboratory at the SOLARIS National Synchrotron Radiation Centre		N. Kučerka	
34.	FLNR	04-5-1131-2017/2021 Radiation Physics, Radiochemistry and Nanotechnology Investigations Using Beams of Accelerated Heavy Ions	I	S. Dmitriev P. Apel	To extend the theme until the end of 2023 with Priority I.
35.	LRB	04-9-1077-2009/2023 Research of the Biological Effect of Heavy Charged Particles with Different Energies Research of the biological effect of heavy charged particles with different energies (2015–2023) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to shift the final decision on the project category to June 2021.	I 1	E. Krasavin A. Bugay E. Krasavin A. Bugay	
36.	LRB	04-9-1112-2013/2022 Research on Cosmic Matter on the Earth and in Nearby Space; Research on the Biological and Geochemical Specifics of the Early Earth Research on cosmic matter on the Earth and in nearby space; research on the biological and geochemical specifics of the early Earth (2013–2022) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to shift the final decision on the project category to June 2021.	I 1	E. Krasavin A. Rozanov V. Shvetsov (FLNP) E. Krasavin Scientific leader: A. Rozanov	

№№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory
37.	DLNP	04-2-1132-2017/2022 Biomedical and Radiation-Genetic Studies Using Different Types of Ionizing Radiation	1	G. Mitsin S. Yakovenko <i>Deputy:</i> S. Shvidky	
		Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: Further development of methods, technologies, schedule modes and delivery of radiotherapy (2017–2022) To assign category "A" to the project.	1	G. Mitsin K. Voskanyan	
		RADIOGENE: Molecular genetics of radiation-induced changes at the gene, genome and transcriptome level in <i>Drosophila melanogaster</i> (2017–2022) To shift the final decision on the project category to June 2021.	1	I. Alexandrov	
		Study of the radioprotective properties of the Damage Suppressor (Dsup) protein on a model organism <i>D. melanogaster</i> and human cell culture HEK293T (2021-2022) To shift the final decision on the project category to June 2021.	1	E. Kravchenko	
38.	DLNP	04-2-1126-2015/2023 Novel Semiconductor Detectors for Fundamental and Applied Research	1	G. Shelkov <i>Deputy:</i> V. Rozhkov	
		Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: Novel semiconductor detectors for fundamental and applied research (2015–2023) To shift the final decision on the project category to June 2021.	1	G. Shelkov <i>Deputy:</i> V. Rozhkov	
		Development of the experimental techniques and applied research with slow monochromatic positron beams (PAS) (2016–2023) To shift the final decision on the project category to June 2021.	1	A. Kobets K. Semek <i>Scientific leader:</i> I. Meshkov	
		GDH&SPASCHARM (2011–2022)	1	Yu. Usov A. Kovalik	

Networking, Computing, Computational Physics (05)

№№	Laboratory	Theme code Theme title Project title (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by Science and Technology Council of Laboratory
39.	LIT	05-6-1118-2014/20123 Information and Computing Infrastructure of JINR	1	V. Korenkov <i>Deputy:</i> T. Strizh	
		MICC (2017–2023)	1	V. Korenkov	
40.	LIT	05-6-1119-2014/2023 Methods, Algorithms and Software for Modeling Physical Systems, Mathematical Processing and Analysis of Experimental Data	1	Gh. Adam P. Zrelov <i>Deputies:</i> J. Busa O. Chuluunbaatar	
41.	SOD	05-8-1037-2001/2024 Analytical and Methodological Work to Assess the Prospect of Scientific Research and Cooperation in the Main Directions of JINR's Development. Organization of International Cooperation	1	S. Nedelko <i>Deputies:</i> O.-A. Kulikov A. Zhemchugav	

Educational Programme (06)

№№	Laboratory	Theme code Theme name Projects (timescales) Recommendations of the PACs	Priority in 2021	Theme (project) leader	Proposal by UC
42.	All-JINR theme	06-0-1139-2019/2023 Organization, Support and Development of the JINR Human Resources Programme Open information and educational environment for supporting fundamental and applied multidisciplinary research at JINR (2021–2023) Recommendation of the extraordinary meeting of the PAC for CMP of 29.04.2021: to assign category "A" to the project.	I	V. Matveev S. Pakuliak Yu. Panebrattsev	

S. Nedelko
Chief Scientific Secretary