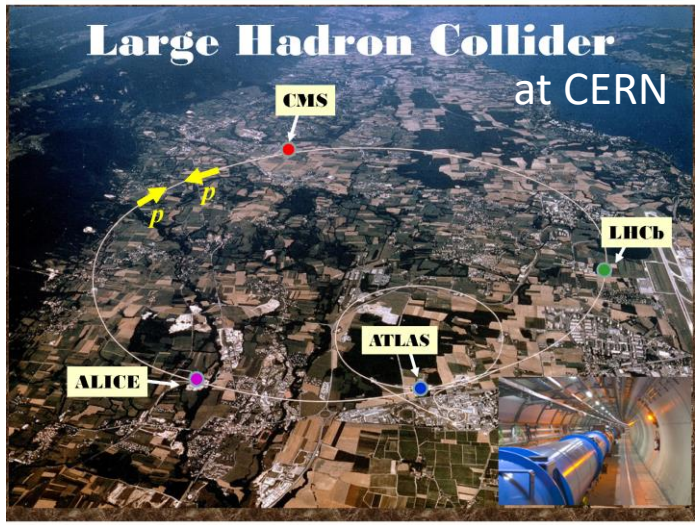
Scientific and Technical work packages in EURIZON EU project

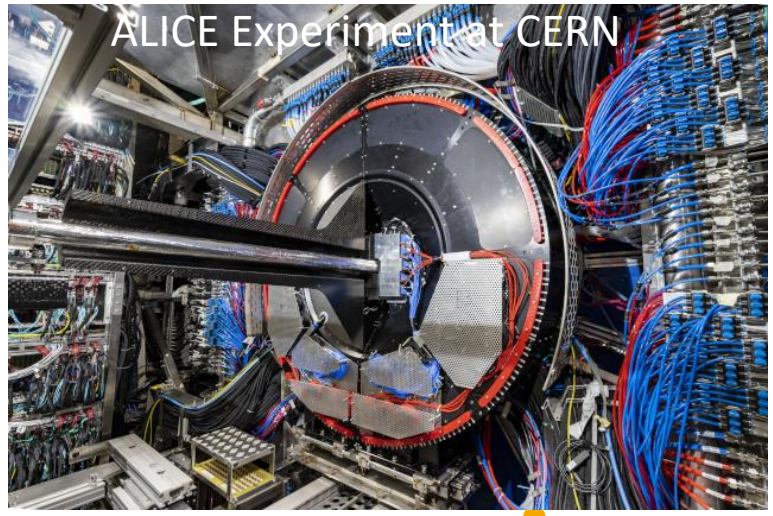
- Importance of International Science Cooperation for large scale Research Infrastructures
- Transformation of this EU project after start of war towards a support action for science and scientists in Ukraine
- Outlook: How to strengthen research institutions in Ukraine in the future

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 871072.

International Science Cooperation for large scale Research Infrastructures - a success story -

- International Science Cooperation e.g. in the field of Particle and Nuclear Physics mandatory to perform fundamental research with large scale experiments at Research Infrastructures (example ALICE at CERN)
- Science Cooperation in large international collaborations --> success model --> also for ESFRI landmarks in EU
- International Science Cooperation (Science Diplomacy) – was one key element to maintain peace in Europe for many decades after world war 2!





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CREMLIN PLUS
Connecting Russian and European Measures for Large-scale Research Infrastructures

EU HORIZON 2020 Funding for Research Infrastructures

European Infrastructures

ESS

ESRF

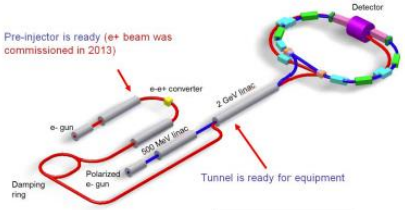
Scope: Science cooperation between European Research Infrastructures and the following

5 Russian megascience projects

- **NICA**: Superconducting accelerator complex („Nuclotron-based ion collider facility“); Dubna
- **PIK**: High-flux research reactor (International Centre for Neutron Research, ICNR); Gatchina
- **USSR**: Ultima Synchrotron Storage Ring; Protvino
- **SCT**: Lepton Collider „Super Charm-Tau Factory“; Novosibirsk
- **XCELS**: High power laser „Exawatt Center for Extreme Light Studies”; Nizhniy Novgorod

USSR sketch, NRC KI

PIK



SCT sketch

XCELS

Transformation of this EU project after start of Russia's invasion in Ukraine towards a support action for science and scientists in Ukraine

CREMLINplus

Consortium of 35 beneficiaries
(9 from Russia plus JINR, Dubna)

Participant No *	Participant short name	Participant organisation name	Country
1	DESY	Stiftung Deutsches Elektronen-Synchrotron	DE
2	BINP	Budker Institute of Nuclear Physics of SB RUS	RU
3	IAP	Institute of Applied Physics, Russian Academy of Sciences	RU
4	ICISTE	International Centre for Innovations in Science, Technology and Education	RU
5	INR RAS	Institute for Nuclear Research of the Russian Academy of Sciences	RU
6	JINR	Joint Institute for Nuclear Research	RU
7	MEPhI	National Research Nuclear University "MEPhI"	RU
8	NRC KI	National Research Center "Kurchatov Institute"	RU
9	NUST MISIS	National University of Science and Technology MISIS	RU
10	PTI	IOFFE Physico-Technical Institute of the Russian Academy of Sciences	RU
11	SPSU	Saint Petersburg State University	RU
12	EKUT	Eberhard Karls Universität Tübingen	DE
13	European XFEL	European X-Ray Free-Electron Laserfacility GmbH	DE
14	FAIR	Facility for Antiproton and Ion Research in Europe GmbH	DE
15	FZJ	Forschungszentrum Jülich GmbH	DE
16	GUF	Johann Wolfgang Goethe-Universität Frankfurt am Main	DE
17	HZG	Helmholtz-Zentrum Geesthacht Zentrum für Material- und Küstenforschung GmbH	DE
18	JLU	Justus-Liebig-Universität Giessen	DE
19	TUM	Technische Universität München	DE
20	CEA	Commissariat à l'Énérgie Atomique et aux Énérgies Alternatives	FR
21	ESRF	European Synchrotron Radiation Facility	FR
22	ILL	Institut Max von Laue - Paul Langevin	FR
23	CNRS	Centre National de la Recherche Scientifique	FR
24	UCA	Université Clermont Auvergne	FR
25	ELI-DC AISBL	Association Internationale Extreme-Light-Infrastructure Delivery Consortium	BE
26	NPI CAS	Nuclear Physics Institute, Czech Academy of Science	CZ
27	MTA EK	Magyar Tudomanyos Akademia Energiatudomanyi Kutatokozpont	HU
28	Wigner RCP	Magyar Tudomanyos Akademia Wigner Fizikai Kutatokozpont	HU
29	INFN	Istituto Nazionale di Fisica Nucleare	IT
30	UNIMIB	Università degli Studi di Milano-Bicocca	IT
	ADSI (LTP*)	Austrian Drug Screening Institute GmbH	AT
31	CERN	European Organization for Nuclear Research	CH
32	WUT	Politechnika Warszawska	PL
33	ESS	European Spallation Source ESS ERIC	SE
34	INR NASU	Institute for Nuclear Research of NAS of Ukraine	UA
35	LLE-AISBL	Laserlab-Europe AISBL	BE

*No. Official participant number; *LTP: Linked Third Party*

After start of invasion (24.02.2022):

- EC terminated participation of Russian Institutions (participation of JINR terminated by remaining consortium)
- New scope for scientific/technical work packages worked out with increased participation of Ukrainian Institutions
- In addition under the new acronym EURIZON a fellowship programme for scientists in Ukraine was added

→ **this transformation is a success story**

EURIZON

Consortium of
27 beneficiaries
(3 from Ukraine)

No.	Beneficiary
1	DESY
12	EKUT
13	European XFEL
14	FAIR
15	FZJ
16	GUF
17	Hereon
18	JLU
19	TUM
20	CEA
21	ESRF
22	ILL
23	CNRS
24	UCA
25	ELI ERIC
26	NPI CAS
27	MTA EK
28	Wigner RCP
29	INFN
30	UNIMIB
31	CERN
32	WUT
33	ESS
34	INR NASU
35	LLE-AISBL
36	NSC KIPT
37	STCU

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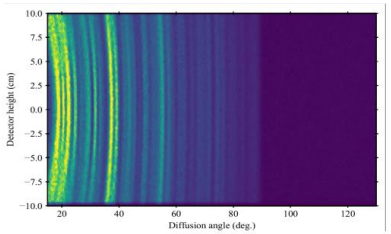
Transformation of Scientific and Technical work packages in EURIZON EU project (WP2 – WP7)

January 2024 final event
for scientific/technical WPs
in Prague

WP	WP Managers
WP1 MGT	Martin Sandhop, DESY
WP2 Heavy Ions	Jürgen Eschke, FAIR
WP3 Neutrons	Stefan Mattauch, FZJ
WP4 Synchrotrons	Michael Krisch, ESRF
WP5 Lepton Colliders	André Sailer, CERN Lucie Linssen, CERN
WP6 High-power Lasers	Catalin Miron, CEA-LIDYL
WP7 Detectors	Christian Schmidt, GSI
WP8 TNA	*Greta Facile, DESY*
WP9 TRAIN	Enrico Guarini, UNIMIB (Greta Facile, DESY)
WP10 LTS	Greta Facile, DESY (Martin Sandhop, DESY)

CREMLINplus WP3: „PIK“ to WP3: „Neutrons“

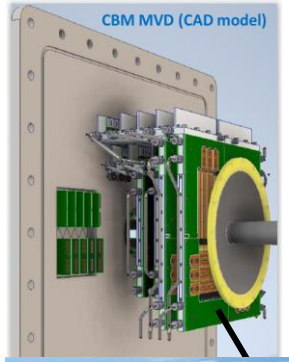
Prototype of advanced polarized neutron diffractometer originally planned for the PIK reactor in St. Petersburg in Russia

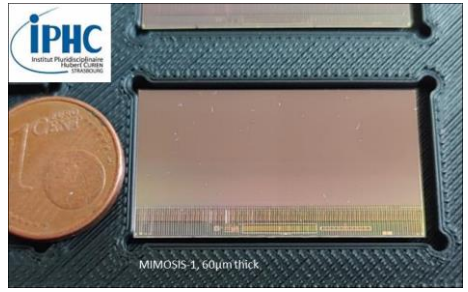


now developed for the usage at the European Spallation Source (ESS) in Lund, Sweden

from CREMLINplus WP7 to EURIZON WP7: „Detectors“ with increased participation of the Ukrainian Institute Kiew Institute for Nuclear Research (KINR) (also for WP2)

Development of MAPS Sensors for the Micro Vertex Detector MVD of the CBM experiment at FAIR





Examples for Strategic partnership between European and Ukrainian institutes
in talk of Maksym Teklishyn in this event on
“Successful long-term science cooperation with Institute for Nuclear Research (NASU)”

How to strengthen research institutions in Ukraine in the future ?

→ dedicated EU project for science cooperation of research laboratories in Ukraine with Research Infrastructures in EU (ESFRI projects/landmarks) and laboratories in Europe

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