



**Cremlin** Connecting  
Russian and European Measures  
for Large-scale Research Infrastructures

Deliverable no.	D4.1
Deliverable title	Development of the Education and Training Programme on Neutron Instrumentation
Deliverable responsible	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Related Work-Package/Task	WP4 Science Cooperation with the PIK research reactor in the field of neutron sources/Task 4.3 Education and Training Programme
Type (e.g. Report; other)	Report
Author(s)	Sergey Grigoriev
Dissemination level	Public
Due submission date	1 March 2016
Download page	<a href="https://www.cremlin.eu/deliverables/index_eng.html">https://www.cremlin.eu/deliverables/index_eng.html</a>

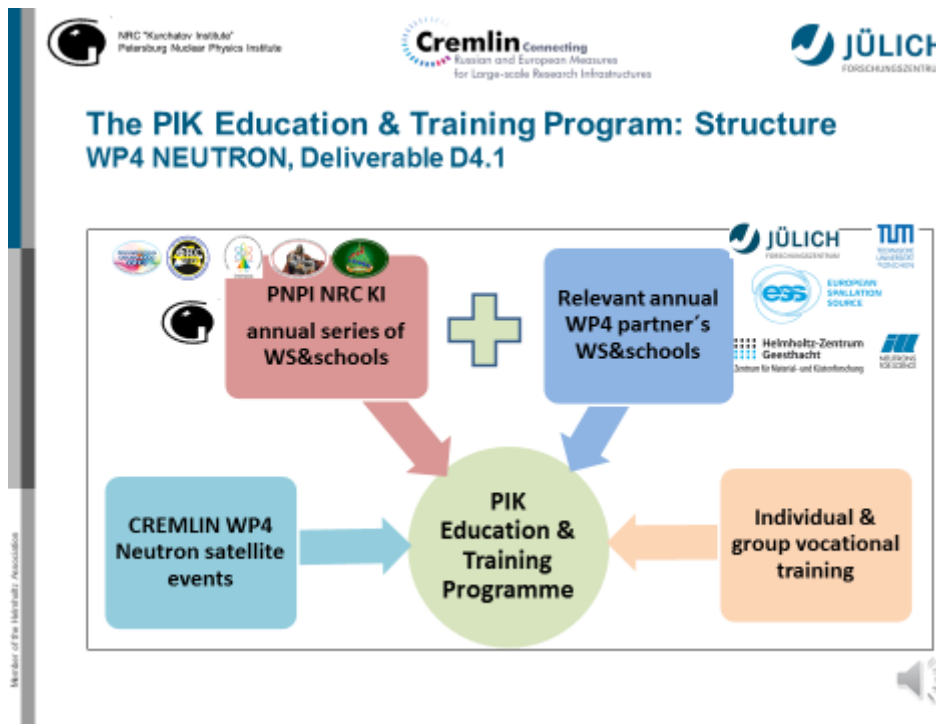
Project full title	Connecting Russian and European Measures for Large-scale Research Infrastructures
Project acronym	CREMLIN
Grant agreement no.	654166
Instrument	Coordination and Support Action (CSA)
Duration	01/09/2015 – 30/08/2018
Website	<a href="http://www.cremlin.eu">www.cremlin.eu</a>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 654166.


**The PIK Education & Training Program** on neutron instrumentation is an open networking and education platform providing integration of Russian and European neutron training resources. The program is designed as a combination of the CREMLIN satellite events with relevant neutron workshops & schools both in Gatchina and by other WP4 partners. Given the vital character of the program, there is still the possibility of program upgrading during the lifetime of the project.


Picture 1: Structure




Picture 2: Implementation


Year	Implementation Stage	Key Activities
2018	Full	<ul style="list-style-type: none"> <li>vocational training</li> </ul>
2017	Upgrade	<ul style="list-style-type: none"> <li>European schools &amp; workshops</li> </ul>
2016	Pilot	<ul style="list-style-type: none"> <li>PNPI NRC KI schools &amp; workshops</li> <li>Satellite events</li> </ul>

Event title	<b>Neutron Diffraction-2016</b>
Event type	Workshop
Name in Russian	«Дифракция нейтронов – 2016»
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Description	<p>Workshop «Neutron Diffraction-2016» covers the study of the atomic and magnetic crystal structures using neutron, x-ray and synchrotron diffraction. The purpose of the meeting is to demonstrate the unique use of diffraction methods in modern research.</p> <p>The scientific scope of the workshop covers the following subjects:          Neutron diffraction in solid-state physics          The complementarities of the X-ray and neutron diffraction techniques in solid state physics;          The diffraction of polarized neutrons;          Fundamental and applied material science with diffraction methods;          Global trends in neutron diffractometry.          New diffraction instrumentation.</p> <p><i>The workshop as a part of WP4 Educational program is directly associated with the creation of the PIK instrumentation concept in the field of diffraction (see talks in Session 4 of the workshop: “Global trends in neutron diffractometry. New diffraction instrumentation”.</i></p>
Link to the official web-site	<a href="https://oiks.pnpi.spb.ru/events/difrakciya-2016/about">https://oiks.pnpi.spb.ru/events/difrakciya-2016/about</a>
Link to the EU acknowledgement	<a href="https://oiks.pnpi.spb.ru/events/difrakciya-2016/acknowledgement">https://oiks.pnpi.spb.ru/events/difrakciya-2016/acknowledgement</a>
Venue	Gatchina, B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI), building #7, conference hall
Dates	18.02.2016-19.02.2016
Participants	65 participants registered <a href="https://oiks.pnpi.spb.ru/events/difrakciya-2016/participants">https://oiks.pnpi.spb.ru/events/difrakciya-2016/participants</a>
Category of participants	Leading scientists Representatives of the R&D sector Representatives of the higher educational establishments Young scientists PhD students Master students
Estimated CREMLIN-funded costs	<p>Travel costs for participants/speakers who are the employees at Institutions, which are the CREMLIN WP4 Partners, would be covered from their own CREMLIN funds targeted at travel costs reimbursement.</p> <p>Travel costs for participants/speakers who are employees at Institutions, which are not the CREMLIN WP4 Beneficiaries (i.e. Invited speakers, whose participation is deemed necessary for the success of the event by the Organizer): To be requested.</p>

Event title	<b>School on Condensed State Physics 2016</b>
Event type	School
Name in Russian	Школа по Физике Конденсированного Состояния 2016
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Description	<p>Neutron and X-ray scattering is traditionally used to study properties of materials and develop theoretical concepts describing their functioning. The list of objects of such studies is growing rapidly, focusing on the booming world market of modern materials, created by chemical, pharmaceutical, biotechnological, and many other industries. The school aims to identify promising techniques for the condensed state physics, and tell about the objects, which are the most relevant from the point of view of modern research.</p> <p><i>The special feature of the 2016 School is the Invited Speakers from Institut Laue Langevin (ILL) (WP4 Partner) with their lectures on the cutting-edge condensed matter studies.</i></p>
Link to the official website	<a href="https://oiks.pnpi.spb.ru/events/difrakciya-2016/about">https://oiks.pnpi.spb.ru/events/difrakciya-2016/about</a>
Link to the EU acknowledgement	<a href="http://fks2016.pnpi.spb.ru/committee">http://fks2016.pnpi.spb.ru/committee</a>
Venue	Zelenogorsk, Russia
Dates	14.03.2016-19.03.2016
Participants	322 participants registered <a href="http://fks2016.pnpi.spb.ru/parties">http://fks2016.pnpi.spb.ru/parties</a>
Category of participants	<p>Leading scientists</p> <p>Representatives of the R&amp;D sector</p> <p>Representatives of the higher educational establishments</p> <p>Young scientists</p> <p>PhD students</p> <p>Master students</p>
Particularities	<p>15.03.2016 – the Russia-ILL scientific cooperation day with extensive scientific program from ILL scientists</p> <p>Distribution of ENSA (European Neutron Scattering Association) brochure on the neutron studies “Neutron Science and Technology”</p>
Estimated CREMLIN-funded costs	Travel costs for ILL participants/speakers (WP4 Partner), will be covered from the ILL CREMLIN funds targeted at travel costs reimbursement.

Event title	<b>Workshop on inelastic neutron scattering SPECTRINA 2016</b>
Event type	Workshop
Name in Russian	Рабочее совещание по неупругому рассеянию нейтронов «СПЕКТРИНА - 2016»
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Description	<p>Workshop on inelastic neutron scattering SPECTRINA 2016 is a workshop dealing with study of dynamics of the matter by the methods of inelastic neutron scattering. The scope of the workshop covers, primarily, a range of topical issues related to the dynamics of the lattice and magnetic excitations, which have always constituted the cutting edge of modern condensed matter physics.</p> <p>Scientific scope:</p> <p>The workshop will feature presentations on the following topical areas:</p> <ol style="list-style-type: none"> <li>1. Research methods of inelastic scattering and achievements in condensed matter physics and in materials science;</li> <li>2. Three-axis spectroscopy;</li> <li>3. Neutron spectroscopy by time-of-flight;</li> <li>4. Spin-echo spectroscopy;</li> <li>5. The joint use of neutron and synchrotron radiation to study the dynamics of excitations;</li> <li>6. Instrumentation for neutron spectroscopy at neutron sources in Russia.</li> </ol> <p><i>The workshop as a part of WP4 Educational program is directly associated with the creation of the PIK instrumentation concept in the field of spectroscopy, with some of the reports/talks dedicated specifically to this topic.</i></p>
Link to the official web-site	<a href="https://oiks.pnpi.spb.ru/events/spektrina-2016/about">https://oiks.pnpi.spb.ru/events/spektrina-2016/about</a>
Link to the EU acknowledgement	Under development
Venue	Gatchina, B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI), building #7, conference hall
Dates	23.06.2016-24.06.2016
Estimated number of participants	<p>≈50</p> <p>Registration in progress</p> <p><a href="https://oiks.pnpi.spb.ru/events/spektrina-2016/participants">https://oiks.pnpi.spb.ru/events/spektrina-2016/participants</a></p>
Category of participants	<p>Leading scientists</p> <p>Representatives of the R&amp;D sector</p> <p>Representatives of the higher educational establishments</p> <p>Young scientists</p>


	PhD students Master students
Estimated CREMLIN-funded costs	Travel costs for participants/speakers who are the employees at Institutions, which are the CREMLIN WP4 Partners, would be covered from their own CREMLIN funds targeted at travel costs reimbursement. Travel costs for participants/speakers who are employees at Institutions, which are not the CREMLIN WP4 Beneficiaries (i.e. Invited speakers, whose participation is deemed necessary for the success of the event by the Organizer): To be requested.

Event title	<b>Workshop on small-angle neutron scattering MURomets 2016</b>
Event type	Workshop
Name in Russian	Совещание по малоугловому рассеянию нейтронов «МУРомец 2016»
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Description	Workshop on small-angle neutron scattering MURomets 2016 dealing with the study of nano-objects and nanostructures by means of neutron scattering. The purpose of the workshop is the activation of Russia's scientific community in the field of small angle neutron scattering. The scope of the meeting covers many areas of science in which small-angle neutron scattering plays an important role of indispensable tool in the study of objects of physics, chemistry and biology. The scientific program of the workshop includes the following topics: <ul style="list-style-type: none"> <li>- instruments for small-angle neutron scattering and neutron reflectometry;</li> <li>- reflectometry and small-angle diffraction for the study of magnetism;</li> <li>- the use of small-angle neutron scattering for chemistry and material science;</li> <li>- the use of small-angle neutron scattering for biology;</li> <li>- new techniques of small-angle neutron scattering.</li> </ul>
Link to the official web-site	Web-site under development
Link to the EU acknowledgement	Web-site under development
Venue	Gatchina, B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI), building #7, conference hall
Dates	End of September 2016
Estimated number of	≈100

participants	Registration not started yet
Category of participants	Leading scientists Representatives of the R&D sector Representatives of the higher educational establishments Young scientists PhD students Master students
Estimated CREMLIN-funded costs	Travel costs for participants/speakers who are the employees at Institutions, which are the CREMLIN WP4 Partners, would be covered from their own CREMLIN funds targeted at travel costs reimbursement. Travel costs for participants/speakers who are employees at Institutions, which are not the CREMLIN WP4 Beneficiaries (i.e. Invited speakers, whose participation is deemed necessary for the success of the event by the Organizer): To be requested.

Event title	<b>School on polarized neutron physics 2016</b>
Event type	School
Name in Russian	Школа по физике поляризованных нейтронов ФПН-2016
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI)
Description	The School is connected with the names of Dr. Giliari Drabkin and Dr. Sergey Maleev. These two outstanding scientists inspired and originated the condensed matter research at the Institute, specifically with the help of polarized neutrons. They are considered to be the Founding Fathers of the Polarized Neutron School in Gatchina. The trailblazing scientific works of Drabkin, Maleev and one more distinguished PNPI scientist Dr. Alexander Okorokov <i>in the field of polarized neutrons laid the groundwork for a wide range of scientific investigations worldwide, as well as for their application at the neutron facility PIK.</i> The purpose of the school is to promote the activity of the Russian scientific community in the area of polarized neutron research and get young scientists involved into the scientific research.
Link to the official web-site	Web-site under development
Link to the EU acknowledgement	Web-site under development
Venue	Gatchina, B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI), building #7, conference hall
Dates	Mid-December 2016
Estimated number of participants	~70 Registration not started yet
Category of participants	Leading scientists Representatives of the R&D sector Representatives of the higher educational establishments

	Young scientists PhD students Master students
Estimated CREMLIN-funded costs	Travel costs for participants/speakers who are the employees at Institutions, which are the CREMLIN WP4 Partners, would be covered from their own CREMLIN funds targeted at travel costs reimbursement. Travel costs for participants/speakers who are employees at Institutions, which are not the CREMLIN WP4 Beneficiaries (i.e. Invited speakers, whose participation is deemed necessary for the success of the event by the Organizer): To be requested.

Event title	<b>CREMLIN Satellite Event: All-Russia SANS Bio Soft Users Workshop</b> together with 2nd PNPI Workshop: SANS in biopolymers 2016
Event type	Workshop, 2 full day sessions of the Russian Neutron Users in BioSoft
Name in Russian	Малоугловое рассеяние в биополимерах 2016
Logo	
Organized by	B.P. Konstantinov Petersburg Nuclear Physics Institute (PNPI) and Forschungszentrum Jülich
Description	<p>Mapping Russian BioSoft User Demands – that is to determine the national interests, to project them on existing possibilities in Russia (Dubna, NRC KI, Dimitrovgrad, ...) and as a result to determine blank spaces in the Russian neutron landscape to be filled in accordance with demands of the future PIK Instrument Suite.</p> <p>The goals of the “All-Russia SANS Bio Soft Users Workshop” are:</p> <ol style="list-style-type: none"> <li>to build Russian Neutron Users Community in BioSoft</li> <li>to complement a regular PNPI meeting on studies of large-scale structures (SANS) with discussions on: <ul style="list-style-type: none"> <li>- studies of very large-scale structures with sizes of 1<math>\mu</math>m-10<math>\mu</math>m, above abilities of conventional SANS;</li> <li>- atomic scale studies of biological molecules (protein crystallography);</li> <li>- studies of dynamics in biosoft (inelastic scattering);</li> </ul> </li> <li>Mapping Russian Neutron Landscape: PIK and beyond (NIC KI reactor, Dubna reactor, Dimitrovgrad reactor) and screening Russian BioSoft User Demands</li> </ol>
Link to the official web-site	Web-site under development
Link to the EU acknowledgement	<a href="https://www.cremlin.eu/work_plan/work_package_4/index_eng.html">https://www.cremlin.eu/work_plan/work_package_4/index_eng.html</a>
Venue	Peterhof, Saint Petersburg State University (SPbSU)



Dates	23-24 May 2016
Estimated number of participants	
Category of participants	<p>Targeted Group: Russian Bio Soft Community with participation of Russian-speaking scientists working abroad + invited international keynote speakers</p> <p>Leading scientists</p> <p>Representatives of the R&amp;D sector</p> <p>Representatives of the higher educational establishments</p> <p>Young scientists</p> <p>PhD students</p> <p>Master students</p>
Estimated CREMLIN-funded costs	<p>Travel costs for participants/speakers who are the employees at Institutions, which are the CREMLIN WP4 Partners, would be covered from their own CREMLIN funds targeted at travel costs reimbursement.</p> <p>Travel costs for participants/speakers who are employees at Institutions, which are not the CREMLIN WP4 Beneficiaries (i.e. Invited speakers, whose participation is deemed necessary for the success of the event by the Organizer): To be requested.</p>