



## Document information

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EC Grant Agreement No. 654166  
Project duration: 01.09.2015-31.08.2018

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## **CREMLIN WP5 Workshop: "Towards a conceptual design for the Russian SSRS-4 facility"**

*Satellite workshop to DESY Photon Science Users' Meeting 2018 & European XFEL Users' Meeting  
Tuesday, 23 January 2018, 09:00-16:30 CET  
DESY Hamburg, Notkestrasse 85, CFEL Building (building 99), Ground floor, Seminar room 2*

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### **Minutes of the Workshop**

Talks:

<https://indico.desy.de/indico/event/18772/material/slides/>

CREMLIN news:

[https://www.cremlin.eu/news/2018/european\\_russian\\_workshop\\_on\\_ssrs\\_4\\_at\\_desy/](https://www.cremlin.eu/news/2018/european_russian_workshop_on_ssrs_4_at_desy/)



Picture: Marta Mayer, DESY

## About:

*This CREMLIN Workshop is devoted to preparing the joint Russian-European collaboration with regard to the conceptual design for the Russian megascience project "Fourth generation special purpose synchrotron radiation source". It brings together representatives, experts, and users from existing European and Russian SR and FEL facilities, partners from within the CREMLIN WP5 (ESRF, MAX IV Laboratory, European XFEL, DESY, NRC KI, IC RAS) as well as from institutions beyond this scope as external experts.*

*The objective is to discuss and to clarify key questions on the specific type and parameters of synchrotron light source, including the preferred energy range, and taking into account the specific user demands and the intended fields of application.*

## Questions & topics discussed in the talks and in the plenum:

- *Which type of synchrotron light source should be proposed?*
- *What will be the preferred energy range for the SSRS-4?*
- *What are the prospective major fields of application?*
- *What is the intended complementarity of the SSRS-4 facility with existing Russian and European SR facilities?*
- *Requirements for a candidate site for the facility?*

## General results:

During the workshop, participants came to key findings:

- Several Russian X-ray workshops have been organized in the past. There is now a much better understanding of the needs and demands of the x-ray user communities in Russia
- A coordinated national effort under the leadership of NRC KI has been initiated towards the conceptual design of SSRS-4. This includes also the involvement of major laboratories such as the Budker Institute and the Kurchatov-affiliated ITEP institute
- A first conceptual design suggests for the SSRS-4 a high energy storage ring with presently two different injections schemes under consideration - one booster-based and one with a full energy LINAC
- The WP5 workshop was an excellent opportunity to further discuss EU-Russian cooperation around SSRS-4
- Based on previous experiences for such large projects it is recommended to devise a well-structured project management framework including related governance for the conceptual and technical design phases of SSRS-4. This includes mandates and allocation of tasks and responsibilities for the project and its management in the areas experiments, machine and infrastructure. Such a project governance will also help to facilitate international cooperation.
- Based on the existing cooperation with DESY and ESRF, both laboratories can act as key international partners of NRC KI and its national consortium (e.g. Budker Institute) during the conceptual and technical design phases of SSRS-4. Further international partners are welcome to join.
- Recommendation for CREMLIN follow-up project and a potential SSRS-4-related work package: the next WP should be used for working on and finalizing the CDR for SSRS-4, followed by the TDR

- The participants agreed that the SSRS-4 facility should be constructed in proximity to a major scientific hub in Russia

### **Talks and Discussion:**

#### **Session I: The machine. Design issues and parameters.**

##### **Moderator: Harald Reichert**

Alexander Blagov, NRC KI: *The 4th generation special synchrotron radiation source (SSrs-4)*

Roman Senin, NRC KI: *User demands for SSRS-4*

Timur Kulevoy, NRC KI ITEP, NRC KI ITEP: *SSRS-4 project*

Alexey Tishchenko, NRC KI, MEPhI: *On beam diagnostics for SSRS-4*

M. Lalayan, NRC KI, MEPhI: *Linear Accelerator for SSRS-4 Facility*

Konstantin Zolotarev, Budker Institute: *The contribution of the Budker Institute to the SSRS-4: Insertion devices*

#### **Session II: The Users.**

##### **Moderator: Elena Tereschenko**

Olga Alekseeva, FSRC "Crystallography and Photonics" RAS: *Federal Scientific Research Center "Crystallography and Photonics" Russian Academy of Science*

Alexander Soldatov, SFedU Rostov-on-Don: *The Beamline of our dream*

Alexander Goikhman, IKBFU Kaliningrad: *IKBFU Research and Educational Centre «Functional Nanomaterials»*

Marina Baidakova, Ioffe Institute & ITMO University: *Users view on SSRS4*

#### **Session III: The European view.**

##### **Moderator: Alexander Blagov**

Harald Reichert, ESRF: *The ESRF view*

Oliver Seeck, DESY: *DESY's view on SSRS-4*

Pedro Fernandes, MAX IV: *MAX IV Perspective*

Serguei Molodtsov, European XFEL: *Considerations for SSRS-4 Facility*

Martin Sandhop, DESY: *SSRS-4 and the CREMLIN follow up project: Towards elaborating a plan for the future collaboration*

**Open Plenary Discussion: *Which is the plan for the future? – Recommendations for the SSRS-4 collaboration after CREMLIN within the follow up project***

**Moderator: Martin Sandhop**

Additional talks:

L.A. Dadinova, FSRC “Photonics and Crystallography”: *User point of view*

E. Karantzoulis, Elettra: *Design Aspects for Elettra 2.0*

M.V. Petoukhov, FSRC “Photonics and Crystallography”: *Comments from the SAXS Community*

**Discussion:**

The discussion that followed the presentations focused on the aspects already discussed lively in the three preceding sessions.

- Several directions for design proposal: SR, or SR + FEL:
  - There is no final decision taken yet
  - Needs to be clarified by the Russian side
- Energy range: proposed 6 GeV – more than 3 GeV:
  - Based on results of Russian SR Users’ meeting at NRC-KI
  - (Russian) Discussion on preferred energy range still ongoing
- General recommendations:
  - Proceed stepwise: first storage ring, then FEL
  - Take further steps to build up (Russian) X-ray user community,
  - Define more precisely the user community to be served with the future SSRS-4 facility
  - SSRS-4 should become member (associate) of LEAPS when appropriate

***For a large part the discussions focused on the best choice for the energy of the storage ring where two options compete with each other:***

- ***a high energy storage ring operating at 6 GeV – focus on high energy applications***
- ***a medium-to-high energy storage ring in the range 3-4.5 GeV – possibility to include soft-X-ray beamlines***

***Overall, the participants felt that the discussions have significantly progressed such that important decisions about the future of the project can be taken.***



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CFEL Building (building 99), Ground floor, Seminar room 2*

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### **Objectives:**

*This CREMLIN Workshop is devoted to preparing the joint Russian-European collaboration with regard to the conceptual design for the Russian megascience project "Fourth generation special purpose synchrotron radiation source". It shall bring together representatives, experts, and users from existing European and Russian SR and FEL facilities, partners from within the CREMLIN WP5 (ESRF, MAX IV Laboratory, European XFEL, DESY, NRC KI, IC RAS) as well as from institutions beyond this scope as external experts.*

**WI-FI: Name: UserMeeting2018, Password: iu4ohcohXuHe**

### **Agenda**

09:00	<b>Registration</b>
09:30	<b>Welcome</b> Martin Sandhop, DESY Harald Reichert, ESRF Mikhail Rychev, NRC KI
09:45-11:00	<b>Session I: The machine. Design issues and parameters.</b> <b>Moderator: Harald Reichert</b> <i>Talks ~15min</i>  <i>The SSRS-4 project: The plan for the design</i> Alexander Blagov, NRC KI  <i>A general view on the user community in Russia</i> Roman Senin, NRC KI  <i>The contribution of the ITEP to the SSRS-4</i> Timur Kulevoy, NRC KI ITEP and Alexey Tishchenko, NRC KI ITEP (on Control system)  <i>The contribution of the Budker Institute to the SSRS-4</i> Konstantin Zolotarev, Budker Institute
	<b>Questions &amp; Answers Session I</b>
11:00-11:30	<b>Coffee Break &amp; Group picture</b>

11:30-12:45	<b>Session II: The Users.</b> <b>Moderator: Elena Tereschenko</b> <i>Talks ~10 min</i>  Contribution Olga Alekseeva, FSRC “Crystallography and Photonics” RAS  Contribution Alexander Soldatov, SFedU Rostov-on-Don  Contribution Alexander Goikhman, IKBFU Kaliningrad  Contribution Marina Baidakova, Ioffe Institute & ITMO University  <i>[around 4-5 talks by representatives of Russian Photon science user community]</i>
	<b>Questions &amp; Answers Session II</b>
12:45-14:15	<b>Lunch</b> <i>DESY Canteen, building 9</i>
14:30-15:30	<b>Session III: The European view.</b> <b>Moderator: Alexander Blagov</b> <i>Talks: ~10 min</i>  Harald Reichert: The ESRF view  Oliver Seeck: The DESY view  Pedro Fernandes: The MAX IV Lab view  Serguei Molodtsov: The European XFEL view  Martin Sandhop: SSRS-4 and the CREMLIN follow up project
	<b>Questions &amp; Answers Session III</b>
15:30-16:15	<b>Open Plenary Discussion.</b> <b>Moderator: Martin Sandhop</b>  <i>Which is the plan for the future? –  Recommendations for the SSRS-4 collaboration after CREMLIN within the follow up project</i>
16:30	<b>End of workshop</b>
18:00-20:00	<b>Informal Workshop Buffet Dinner</b> <i>DESY Bistro, building 9a</i>

**Workshop Organisers: ESRF, NRC KI, DESY (WP5)**

**Registration:**

<https://indico.desy.de/confRegistrationFormDisplay.py?confId=18772>

**Link to DESY Photon Science and European XFEL Users’ Meetings:**

[http://photon-science.desy.de/users\\_area/users' meeting/index\\_eng.html](http://photon-science.desy.de/users_area/users' meeting/index_eng.html)

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How-to-Get to DESY: [http://www.desy.de/about\\_desy/getting\\_there/hamburg/index\\_eng.html](http://www.desy.de/about_desy/getting_there/hamburg/index_eng.html)





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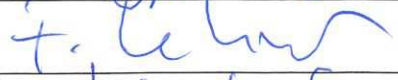
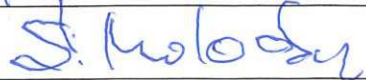
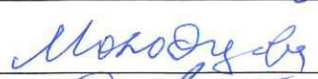





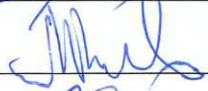

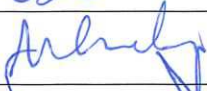
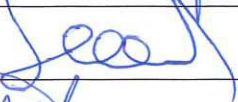

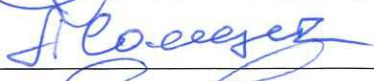
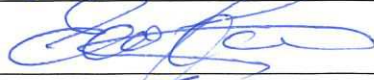
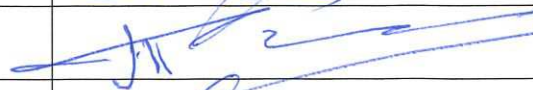


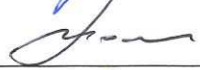


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