



CREMLIN WP5: SSRS-4 4th Generation Russian Synchrotron Radiation Source and the European Context

- Analysis of the existing and potential Russian X-ray user communities and demands
- Prepare pathways towards a Conceptual Design Report (CDR) for a SSRS-4 RI
- Develop concepts on big data management in photon science
- Organize a workshop on internationalisation, access and user policy, governance
- **✓** Analysis of the existing and potential Russian user communities
- ✔ Workshop on mapping demand/needs of the Russian and European PS communities
- ✓ Workshop on the identification of a candidate facility for a 4th generation photon source within a realistic technical scope
- ✓ Recommendations on common data standard policy
 - Report on internationalisation, access and user policy, governance in progress



WP2: ESRF/NRC-KI: beam diagnostics, control system

WP3: ESRF/BINP: RF system, insertion devices



NATIONAL RESEARCH CENTER «KURCHATOV INSTITUTE»







SSRS-4 – THE PART OF NATIONAL GOALS

The President of Russian Federation signed Executive Order On National Goals and Strategic Objectives of the Russian Federation through to 2024



Vladimir Putin visited the National Research Centre Kurchatov Institute 10/04/2018



Executive Order On National Goals 07/05/2018

According to Presidential instructions the Government should comprise a list of measures for synchrotron-neutron research, including the creation of a specialized fourth-generation synchrotron radiation source in Protvino (Ultimate Source of Synchrotron Radiation – USSR), Moscow Region



COOPERATION AND COORDINATION





USER DEMANDS, EXPERIMENTS AND INSTRUMENTS

SSRS-4 Users

- > 40 universities
- 120 Institutes
- 30 industrial comp
- 1200 users of RNCC
- + International users



Users needs for SSRS-4

 ~ 1000

stage

proposals/year

on starting

All traditional methods and beamlines

- Diffraction
- Scattering
- Spectroscopy
- Visualization

New methods and beamlines

- Coherent diffraction, imaging and holography
- X-ray nanobeams, X-ray microscopy with atomic resolution
- Ultra high temporal resolution
- Single particle analysis
- Special extreme condition



REQUIREMENTS AND CONCEPTION

- Multi-user facility
- Diffraction limited source
- Full spatial coherence
- Highest temporal coherence
- High brilliance
- Femtosecond resolution

 1st stage (5-7 years)
 LINAC+ Storage ring+5 beamlines
 (Magnetic structure - multi-bend achromat MBA) 6 GeV (~1,3 km)

2nd stage (6-8 years)
Free electron laser ~ 0,1 nm
17 beamlines





Protvino is the biggest Russian Federation center of charged particles accelerator physics



Moscow

Availability of energy and communication networks

Pushchino









Thank you for your attention!



