



PIK: WP4 Coordination team

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PETERSBURG NUCLEAR
PHYSICS INSTITUTE



Kremlin Connecting
Russian and European Measures
for Large-scale Research Infrastructures



JÜLICH
FORSCHUNGSZENTRUM

Partners:



NATIONAL RESEARCH CENTRE
«KURCHATOV INSTITUTE»



PETERSBURG NUCLEAR PHYSICS INSTITUTE



WP4 NEUTRON



EUROPEAN
SPALLATION
SOURCE



Helmholtz-Zentrum
Geesthacht

Zentrum für Material- und Küstenforschung

Observer:



Joint Institute for Nuclear Research



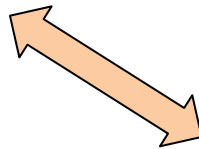
Network of high-flux neutron sources



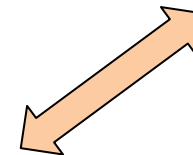
1972 – 2030(?)



2022 – 2060



2019 – 2060



- PIK – a new high-flux neutron source allowing to keep neutron possibilities in Europe after 2030
- This requires the organization of a modern International Neutron Research User Facility around PIK (complimenting ILL and ESS)



Objectives of WP4:

1. Identification of research interests and needs of EU and Russian partners
 - *Material science Workshop in Kiel (2016)*
 - *Biosoft Workshop in Petershof (2017)*
2. Development of guide lines for general instrumentation concept in cooperation with international partners.
 - *6 subcommittees (for 4 instr. classes + neutron sources&optics + detectors)*
 - *Experts from Russia, Europe and US*
 - *biannual meetings.*
3. Help in developments of state-of-the-art supporting structures at the PIK reactor
 - *Engineering Workshop in Petershof (2018)*

Achievements of WP4:

- Further development of the user base in Russia
- European users are learning about upcoming possibilities at PIK; Russian scientists are learning about interests of European users
- Recommendations for diffraction, spectroscopy, small-angle scattering and reflectometry instrument suites
- Regular training of young Russian scientists by regular schools and workshops
- Education of Russian scientists in modeling and engineering of neutron instruments
- Data and user policies



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Networking activities



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Design&Manufacturing

Our recommendations (1):

➤ Joint development and acquisition of specific instrumentation

- High-brilliance cold neutron source
- Bi-spectral neutron guide extraction system
- PIK instrumental suite
- Integrated design of neutron instruments
- Day-one CREMLIN-funded instrument

➤ Joint development of future technologies for RIs' instrumentation

- High-resolution neutron detectors

➤ Staff exchange and thematic courses and workshops

- Instrument Subcommittees
- Targeted schools&workshops
- Training of Russian and European scientists and engineers
- Special university master programs can be set up in Russia.



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Our recommendations (2):

Organization of „International Centre for Neutron Research”
- a User Facility around PIK

- Open access for European users
- Instrumentation based on:
 - Russian national instrumental program
 - German direct instrumental contribution (bilateral RUS-DE agreement)
 - Contributions from other European and non-European partners
 - Complementarity to ILL and ESS