

# Status and plans for the CREMLIN+ Detector School

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*Budker Institute of Nuclear Physics*

International Organizing Committee meeting

November 25, 2020

## **Outline**

1. Fixing the start date
2. Organizational plan and status

# Start date poll results

- Two close leading candidates:
  - March 14, 2022 (Trump)
  - July 4, 2022 (Biden)

	Mar 14 MON	Jul 4 MON	Jul 5 MON	Nov 8 MON
19 participants	✓ 17	✓ 18	✓ 10	✓ 11
	★	★		
👤 Viktor Bodnarchuk	✓	✓	✓	
👤 Lucie Linssen / Dom...	✓	✓		
👤 Tikhonov				✓
👤 Gianni Bencivenni	✓	✓		
👤 Alexander Barnyakov	✓	✓		
👤 Jürgen Eschke	✓	✓	✓	✓
👤 Christian J. Schmidt	✓	✓		✓
👤 Andrey Sokolov	✓	✓	✓	
👤 Margherita Primavera	✓	✓		✓
👤 Richard Hall-Wilton	✓	✓		
👤 Otilia Culicov	✓	✓	✓	
👤 Evgeniy Kravchenko	✓	✓	(✓)	✓
👤 Michael Düren	✓	✓	✓	✓
👤 Ivan Logashenko	✓	✓	(✓)	✓
👤 Mustafa Schmidt	✓	✓	✓	✓
👤 Viktor Bobrovnikov	✓	✓		✓
👤 Nicola De Filippis		✓		✓
👤 G. Cibinetti	✓	(✓)	✓	
👤 Sergey Kononov	✓	✓	✓	✓

# Organizational plan

- ✓ Hold first LOC and IOC meetings and make them regular
- ✓ Gather ideas for the school
- ✓ Compile preliminary list of lectures and hands-on experiments
- ✓ Define max number of participants: about 50
- ✓ Determine the scope and format: Ion/nuclear physics, Particle physics, Neutron physics; lectures and elective hands-on exercises
- ✓ Define the date and duration: in 2022 for 12 days
- ☐ Set up website and/or Indico
- ☐ Find lecturers
- ☐ Announce and advertise
- ☐ Organize student admission and selection
- ☐ Prepare the hands-on experiments
- ☐ Hold the school

# Web resources

- Wiki-page for organizers:  
[https://ctd.inp.nsk.su/wiki/index.php/Detector\\_school\\_CREMLINplus](https://ctd.inp.nsk.su/wiki/index.php/Detector_school_CREMLINplus)
- Indico page started:  
<https://indico.inp.nsk.su/event/41/>

## CREMLIN+ Detector School

4-15 July 2022  
Budker INP  
Asia/Novosibirsk timezone

Overview

Participant List


Summer School for young scientists on particle detector technologies will be held at the Budker Institute of Nuclear Physics in Novosibirsk, Russia in July 2022. The school is organized in the course of the CREMLIN+ project supported by European Union's Horizon 2020 research and innovation programme.

# CREMLIN PLUS


Connecting Russian and European Measures  
for Large-scale Research Infrastructures



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



**Starts** 4 Jul 2022, 09:00  
**Ends** 15 Jul 2022, 18:00  
Asia/Novosibirsk



**Budker INP**  
prospekt Akademika Lavrentieva 11  
Novosibirsk  
Russia  
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There are no materials yet.



# Support person at BINP for hands-on exercises



CREMLINplus Detector School: hands-on exercises options

Файл Правка Вид Вставка Формат Данные Инструменты Дополнения Справка Последнее изменение: только что



100% 123 По умолча... 10 B I A

	F	G	H	I	J	K	L	M	N
	Requirements to entering students	Equipment provided by contributing institution	Equipment to be provided or purchased by BINP	Preparation works	Infrastructure requirements	Time needed	Max. student group size	Link to full description	Support person at BINP
1	?	In-house made large area scintillation counters, HV supply, oscilloscope, analyser, PC with Linux	HV supply like DT1470ET (4ch up to 8kV, 3 mA) or DT8033 (8ch up to 6kV, 3 mA)	Developing exercises and English instructions	NSU room 437	2 hours per exercise	6		Viktor Bobrovnikov
6									
7	Basic knowledge about particle sensors	MCP-PMT and/or SiPMs Scintillator material	Oscilloscope, HV power supplies up to 3000 V, Low voltage supplies up to 50 V, Blue pulsed laser with single-photon-mode or attenuator, Dark box or possibility to darken the room completely	Testing sensors in Giessen Designing exercises and English instructions	NSU room 435 (?)	2 hours	4		Sergey Kononov
8	Basic knowledge about astroparticle physics, namely the creation of cosmic muons	Cosmo boxes	None	Shipping	Room with high pedestal for placing once Cosmo box in a height of around 2 m	2 hours	4	<a href="https://www.desy.de/school/school_lab/zu/then_site/cosmic_particles/experiments/cosmo_experiment/index_eng.html">https://www.desy.de/school/school_lab/zu/then_site/cosmic_particles/experiments/cosmo_experiment/index_eng.html</a>  Link will be redirected to manual when ready	Alexander Barnyakov
9	Basic knowledge about particle interaction with matter, scintillation light, and Cherenkov radiation	Software framework	PCs with Ubuntu Linux, Geant 4	Developing exercise class and instructions	Computer class	4 hours (possibility to prolong or more exercises for interested students)	8		Alexey Buzykaev
10	Basic knowledge about scintillation light and particle tracking	Data files	PCs with Ubuntu Linux, ROOT	Developing exercise class and instructions. Filtering out bad data.	Computer class	4 hours	8	<a href="https://inspirehep.net/literature/1801316">https://inspirehep.net/literature/1801316</a>  Link will be redirected to manual when ready	Alexey Buzykaev
11	?	Proportional He-3 counter, He-3 MWPC or B4C MWPC, scintillation counter, cadmium mask, application software	1. 200MHz oscilloscope, Am-Be neutron source with 1e5-1e7 n/s, neutron moderator (paraffine or polyethylene sphere with 15 cm radius), PC with Windows XP or 7  2. Am-Be neutron source with 1e5-1e7 n/s, neutron moderator (paraffine or polyethylene sphere with 15 cm radius), PC with Windows 7 or 10  3. PC with Debian Linux	Software upgrade, English Instructions, shipment, assembling, testing	1-2. Room with area 40-50 m² rated for neutron source operation, 220V/50Hz/3.5 kVA, tables, chairs.  3. Computer class	2 hours per exercise	1-2. 4 3. 8		Andrey Sokolov

# Tentative list of lectures

from 16/09/2020 meeting

1. BINP HEP facilities
2. Tracking
3. Calorimetry
4. Silicon detectors
5. Neutron detection
6. Particle identification
7. Photodetectors
8. Gaseous detectors
9. Trigger and Data Acquisition
10. ASIC design
11. FPGA programming
12. Test beam analysis
13. Long-term history of TPC (or another detector) development

# Discussion

1. Do we need International advisory committee to help finding lecturers and for more student attraction? If yes, what are proposals for members?
2. Start looking for lecturers.
3. Session for poster or oral student talks on their previous work?
4. Other questions and proposals