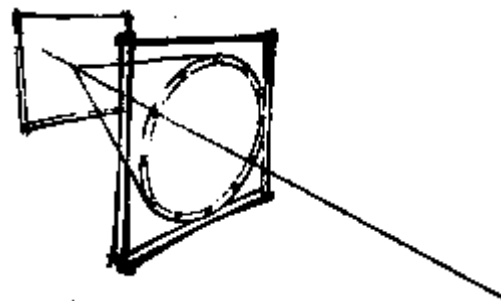




10th INTERNATIONAL WORKSHOP OF RING IMAGING CHERENKOV DETECTORS

**P.N. LEBEDEV PHYSICAL INSTITUTE OF RAS &
MOSCOW ENGINEERING PHYSICS INSTITUTE**



**Russian Academy of Sciences, Moscow, Russia
July 29 – August 4**

A series of RICH International workshops is devoted to the particle detection technique, based on a measurement of the Cherenkov angle via direct imaging of photons emitted through the Cherenkov effect. Eugenio Nappi and Thomas Ypsilantis organized the first workshop in Bari in 1993. During 25 years these workshops provide a forum for reviewing the most significant developments and new perspectives of this powerful technique.

The 10th *jubilee* International workshop on Ring Imaging Cherenkov Detectors (RICH 2018) takes place in Moscow, Russia from July 29 – August 4, 2018. The Workshop is organized by P.N. Lebedev Physical Institute of RAS and Moscow Engineering Physics Institute, where Pavel Cherenkov worked and taught students for a long time.



The Workshop is supported by the Russian Academy of Sciences (РАН), the European Organization for Nuclear Research (CERN), the Russian Foundation for Basic Research (РФФИ) and Hamamatsu Photonics (浜松ホトニクス株式会社).



2018 is full of remarkable dates for RICH lovers

90th Anniversary of Thomas Ypsilantis

60th Anniversary of Pavel Cherenkov's Nobel Prize

25th Anniversary of RICH International workshop series

10th RICH in a series

WORKHOP VENUE

The Workshop will be held in the BLUE HALL in the building of Presidium of the Russian Academy of Sciences (called “Golden Brains” for its yellow bizarre construction on the top).




This building is located near Gagarin square and is very close to the metro station **Leninsky prospect**^⑥ (orange line at the metro scheme) (~700 m) and to the station **Ploschad Gagarina**^⑭ of the new railroad Moscow Central Circle. Use main entrance to the tower in the middle of the inner court.


The Blue Hall (3rd floor) will host all sessions, except for the Memorial one, that will be held in P.N. Lebedev Physical Institute. Adjacent lobby area will host most of scheduled events including poster sessions. Winter garden and lobby area will be used for coffee breaks, relaxation and networking.

WHERE TO EAT

The Presidium RAS building hosts several places where you can go for lunch:

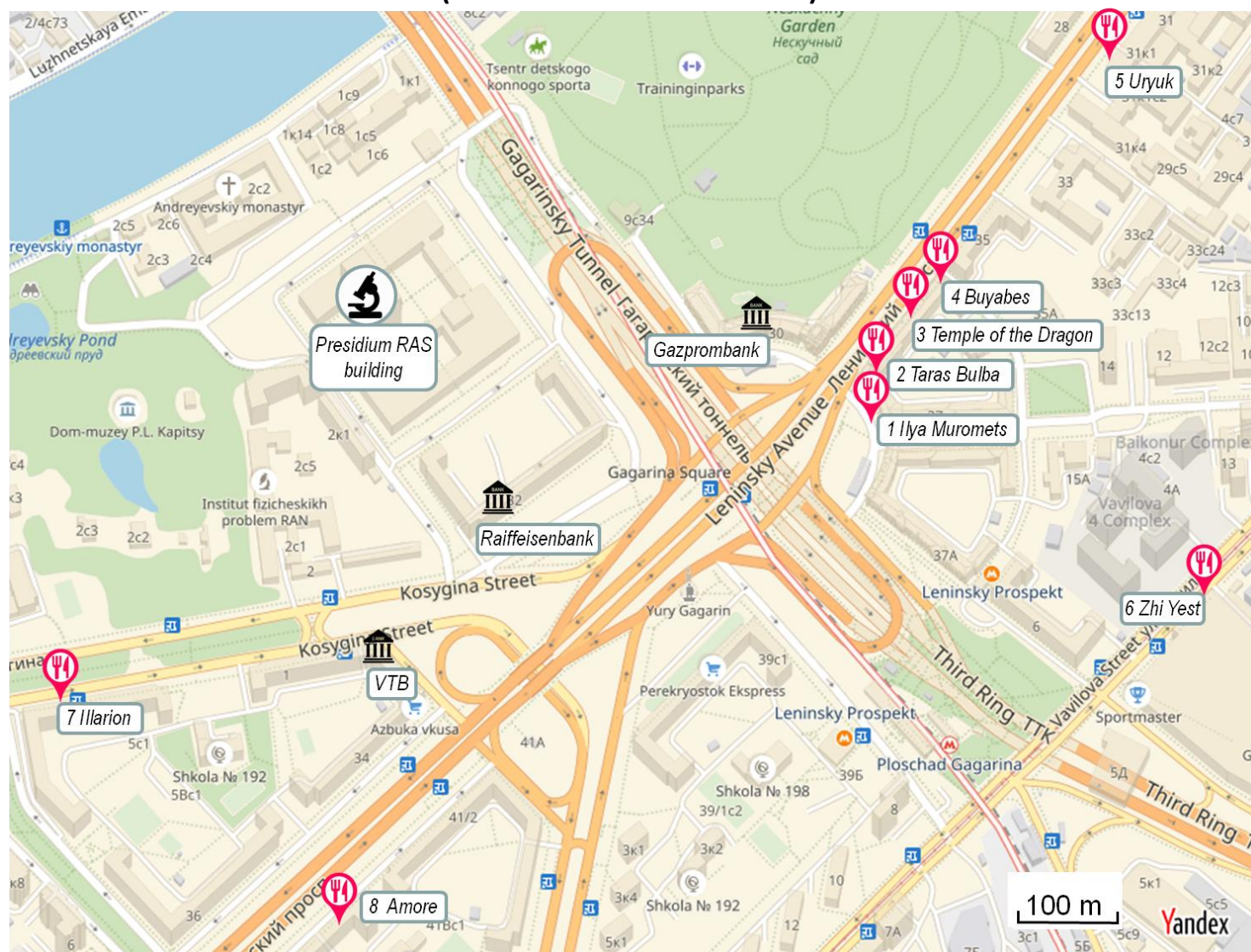
 2nd floor: cafeteria, where you can have full hot lunch (drink, starter, main dish and desert) for 300-500 RUB (4-6€) per person. It is just 1 min walk from the Blue Hall (one floor down). Food style: traditional Russian cuisine. There will be indications on how to reach the canteen. Open hours: 12:00-16:00.



 22nd floor: gorgeous (but expensive) Sky Lounge restaurant with summer terrace (outdoors space) with panoramic view to Moscow city. Russian and European cuisine, sea food. Average bill: 2000-3000 RUB (30-40€) per person. Open hours: 1:00 am – 1:00 pm.

There are plenty of restaurants within walking distance from RAS building for every taste and budget and enough time reserved for lunch (see map “in the vicinity of venue and Korston hotel”).

IN THE VICINITY OF VENUE AND KORSTON HOTEL (RESTAURANTS AND BANKS)



<i>Restaurants</i>	<i>business hours</i>	<i>type of food</i>	<i>rating out of 5</i>	<i>avg. bill (RUB)</i>
1. Ilya Muromets	9am–11pm	european, russian, ukrainian	4.1	700–1500
2. Taras Bulba	9am–11pm	ukrainian, russian, home	4.5	700–1500
3. Temple of the Dragon	12am–11pm	chinese, thai, japanese	4.5	3000–5000
4. Buyabes	12am–11pm	mediterranean, italian, french	4.6	~3500
5. Uryuk	12am– 3am	uzbek, central asian	4.2	700–1500
6. Zhi Yest	24 hours	european, caucasian, chef's	4.5	~1200
7. Illarion	11am–11pm	georgian, caucasian	4.7	~900
8. Amore	10am–11pm	pizza, pasta	4.2	500–1000

+ many restaurants in Korston hotel (500 m west from Illarion restaurant):

Sea Star	24 hours	middle eastern	4.5	500–1300
Seoul	11am–11pm	korean, japanese, middle eastern	4.5	4000–4500
Silla	11am–11pm	middle eastern	4.4	1500
Nlhao	11am–12pm	chinese, korean	4.4	700–1500

AGENDA

MONDAY, 30.07.2018		
8:30 – 8:50	Registration	
8:50 – 9:00	Opening	Nikolay Kolachevsky
<i>Cherenkov light imaging in particle and nuclear physics experiments (Chair: Neville Harnew / Toru Iijima)</i>		
9:00 – 9:40	Cherenkov light imaging in particle and nuclear physics experiments	Antonios Papanestis
9:40 – 10:05	Initial performance of Aerogel RICH detector in Belle II experiment	Haruki Kindo
10:05 – 10:30	The TOP counter of Belle II: status and first results	Umberto Tamponi
10:30 – 10:55	The LHCb RICH detectors: operations and performance	Silvia Gambetta
10:55 – 11:25	COFFEE BREAK / POSTERS	
11:25 – 11:50	The Hybrid MPGD-based photon detectors of COMPASS RICH-1	Fulvio Tassarotto
11:50 – 12:15	The Large-area Hybrid-optics CLAS12 RICH: Assembling, Commissioning and First Data-taking	Marco Mirazita
12:15 – 12:40	The RICH detector of the NA62 experiment at CERN	Patrizia Cenci
12:40 – 14:00	LUNCH	
<i>Cherenkov detectors in astroparticle physics (Chair: Werner Hofmann)</i>		
14:00 – 14:40	Cherenkov light imaging in Astroparticle Physics	Uli Katz
14:40 – 15:05	The AMS-02 RICH detector: status and physics results	Francesca Giovacchini
15:05 – 15:30	Status and Prospects for the IceCube Neutrino Observatory	Dawn Williams
15:30 – 15:55	Neutrino astronomy and oscillation research in the Mediterranean: ANTARES and KM3NeT	Tommaso Chiarusi
15:55 – 16:25	COFFEE BREAK / POSTERS	
16:25 – 16:50	Extending the Observation Limits of Imaging Air Cherenkov Telescopes Toward Horizon	Razmik Mirzoyan
16:50 – 17:15	Cherenkov water detector NEVOD and its further development	Anatoly Petrukhin
17:15 – 17:40	Cherenkov EAS arrays in Tunka Astrophysical Center: from Tunka-133 to TAIGA gamma- and cosmic-ray Hybrid Installation	Leonid Kuzmichev
17:40 – 18:05	Status of the Large Size Telescopes and Medium Size Telescopes for the Cherenkov Telescope Array Observatory	Juan Abel Barrio
18:05 – 18:30	Very High Energy Astrophysics with the SHALON Cherenkov Telescopes	Vera Georgievna Sinitsyna
18:30 – 20:00	WELCOME DRINK	

TUESDAY, 31.07.2018***Cherenkov detectors in astroparticle physics (Chair: Werner Hofmann)***

9:00 – 9:25	Status and perspectives of the Small Size Telescopes for the Cherenkov Telescope Array southern Observatory	Matthieu Heller
9:25 – 9:50	Cherenkov detection at the Pierre Auger Observatory	Ioana Maris
9:50 – 10:15	Recent results and future prospects of Super-Kamiokande	Yasuo Takeuchi

Photon detection for Cherenkov counters (Chair: Antonello Di Mauro)

10:15 – 10:55	Status and perspective of gaseous photon detectors	João Veloso
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COFFEE BREAK / POSTERS

11:25 – 11:50	Photosensors and Front-end Electronics for the Hyper-Kamiokande Experiment	Marcin Ziembicki
11:50 – 12:15	Study on the double micro-mesh (DMM) gaseous structure as a photon detector	Ming Shao
12:15 – 12:40	Performance and commissioning of HAPDs in the Aerogel RICH counter	Masanobu Yonenaga

LUNCH

14:00 – 14:40	Optimized MPGD-based photon detectors for high momentum particle identification at the Electron-Ion Collider.	Shuddha Shankar Dasgupta
14:40 – 15:05	Single photon detection with the multi-anode CLAS12 RICH detector	Marco Contalbrigo
15:05 – 15:30	Status and perspectives of solid state photon detectors	Sergey Vinogradov
15:30 – 15:55	Performance of Planacon MCP-PMT photosensors under extreme working conditions	Yury Melikyan

COFFEE BREAK / POSTERS

16:25 – 17:00	The R&D, Mass Production of the 20 inch MCP-PMT for neutrino detector	Sen QIAN
17:00 – 17:25	Recent Progress with Microchannel-Plate PMTs	Albert Lehmann
17:25 – 17:50	Another step in photodetection innovation: the 1-inch VSiPMT prototype	Felicia Carla Tiziana Barbato

WEDNESDAY, 01.08.2018***Pattern recognition and data analysis (Chair: Eugenio Nappi)***

9:00 – 9:25	NA62 RICH performance: measurement and optimization	Viacheslav Duk
9:25 – 9:50	The role of the NA62 RICH in the $BR(K^+ \rightarrow \pi^+ u \bar{u})$ measurement	Roberta Volpe
9:50 – 10:15	PID performance of the High Momentum Particle IDentification (HMPID) detector during LHC-RUN2	Giacomo Volpe
10:15 – 10:40	Calibration of the Belle II Aerogel Ring Imaging detector	Rok Pestotnik
10:40 – 11:10	COFFEE BREAK / POSTERS	

Alternative PID techniques (Chair: Samo Korpar)

11:10 – 11:50	PID methods other than those based on Cherenkov radiation	Antonello Di Mauro
11:50 – 12:15	The Panda Barrel Time-of-Flight Detector	Sebastian Zimmermann
12:15 – 12:40	Particle detection efficiency of the KEDR detector ASHIPH system	Ivan Ovtin
12:40 – 14:00	LUNCH	
14:00 – 16:30	Visit to Novodechiy Cemetery to tomb of Pavel Cherenkov	
16:30 – 17:00	COFFEE BREAK	

Remembering Pavel Cherenkov (Chair: Evgeniy Kravchenko)

17:00 – 17:30	A history of P.N. Lebedev Physical Institute of the RAS	Yuri Stozhkov
17:30 – 18:00	P.A. Cherenkov in the mirror of world science	Yuriy Bashmakov
18:00 – 18:30	History of astroparticle physics in Russia	Bayarto Lubsandorzhev
19:00 – 20:00	CONCERT	

THURSDAY, 02.08.2018

9:00 – 18:00	Bus tour to Zvenigorod & Visit to Savvino-Storozhevsky Monastery
18:30 – 21:00	Banquet on a board of ship at Moscow river

FRIDAY, 03.08.2018

Alternative PID techniques (Chair: Samo Korpar)

9:00 – 9:25	Development of the TORCH time-of-flight detector	Neville Harnew
9:25 – 9:50	Ten years of operation of the MRPC TOF detector of ALICE: results and perspectives	Roberto Preghenella
9:50 – 10:15	Development a picosecond MCP based particle detector	Mikhail Barnyakov

Technological aspects and applications of Cherenkov detectors (Chair: Evgeniy Kravchenko)

10:15 – 10:55	Status and perspectives of high quality aerogel	Ichiro Adachi
10:55 – 11:25	COFFEE BREAK / POSTERS	
11:25 – 11:50	Photon detectors and front-end electronics for RICH detectors in high particle density environments	Paolo Carniti
11:50 – 12:15	Nanostructured Organosilicon Luminophores as effective wave-length shifters for Cherenkov light and elementary particles detectors	Sergey Ponomarenko
12:15 – 12:40	Silica aerogel radiator for the HELIX RICH system	Makoto Tabata

12:40 – 14:00 LUNCH

14:00 – 14:40	Optical elements for RICH detectors	Miroslav Sulc
14:40 – 15:05	Efficiency of a Cherenkov based PET module with an array of SiPMs	Rok Dolenc
15:05 – 15:30	The Cherenkov optics qualification facilities at INAF-OAB laboratories	Nicola La Palombara

15:30 – 16:00 COFFEE BREAK / POSTERS

Novel Cherenkov imaging techniques for future experiment (Chair: Jochen Schwiening)

16:00 – 16:35	The Upgrade of LHCb RICH Detectors	Massimiliano Fiorini
16:35 – 17:00	Status of the CBM- and HADES RICH projects at GSI/FAIR	Christian Pauly
17:00 – 17:35	RICH counter development for the Electron Ion Collider experiment	Xiaochun He
17:35 – 18:00	Development of the PANDA Forward RICH with aerogel radiator	Sergey Kononov

SATURDAY, 04.08.2018

Novel Cherenkov imaging techniques for future experiment (Chair: Jochen Schwiening)

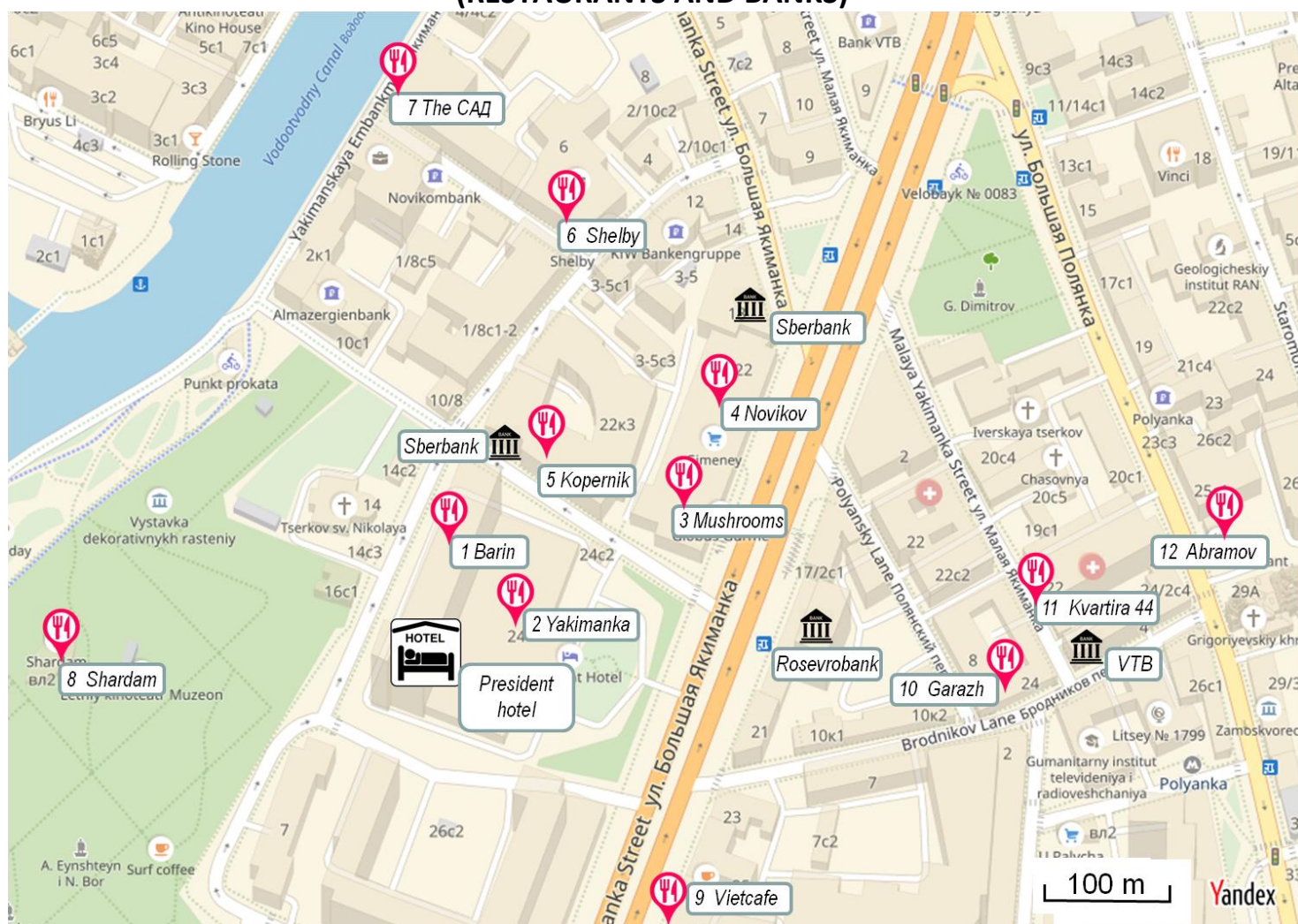
9:00 – 9:35	The PANDA DIRC Detectors	Jochen Schwiening
9:35 – 10:00	Status of the GlueX DIRC	Maria Patsyuk
10:00 – 10:25	PID system based on Focusing Aerogel RICH for the Super C-Tau Factory	Alexander Barnyakov
10:25 – 10:55	Photonic crystals as novel radiators for Cherenkov detectors	Sajan Easo
10:55 – 11:15	Closing	
11:40 – 13:00	LUNCH	
13:00 – 19:00	Bus tour to Moscow & Visit to Kremlin	

POSTER SESSION

<i>Cherenkov light imaging in particle and nuclear physics experiments</i>		
1	Measurement of the p-terphenyl decay constant using WLS coated H12700 MAPMTs and the fast FPGA based CBM/HADES readout electronics	Adrian Weber, Jordan Bendarouach
<i>Cherenkov detectors in astroparticle physics</i>		
2	Cascade showers in the Cherenkov light in water	Semyon Khokhlov
3	Development of a web monitor for the water Cherenkov detectors array of the LAGO project	Ivan Sidelnik
4	Measuring the Cherenkov light yield from cosmic ray muon bundles in the water detector	Rostislav Kokoulin
<i>Photon detection for Cherenkov counters</i>		
5	Development of medium and small size photomultipliers for Cherenkov and scintillation detectors in astroparticle physics experiments.	Andrey Sidorenkov
6	Fast LED based imitators of Cherenkov and scintillation light pulses	Sultim Lubsandorzhiev
7	Novel NanoDiamond based photocathodes for gaseous detectors	Chandradoy Chatterjee
8	Single-photon imaging tube with sub-100ps time and sub-10 microns position resolutions	Massimiliano Fiorini
<i>Pattern recognition and data analysis</i>		
9	Cherenkov Detectors Fast Simulations Using Neural Networks.	Denis Derkach
10	Development of alignment algorithm for Belle II Aerogel RICH counter	Sachi Tamechika
<i>Alternative PID techniques</i>		
11	Charged particle identification with the liquid Xenon calorimeter of the CMD-3 detector	Vyacheslav Ivanov
12	Large Area Thin Scintillating Counters as Charged Particles Identification Detector	Alexander Gorin, Viktor Kovalev, Vladimir Rykalin
13	Optimization of electromagnetic and hadronic extensive air showers identification using muon detectors of TAIGA experiment	Arun Vaidyanathan
<i>Technological aspects and applications of Cherenkov detectors</i>		
14	Analog-to-digital converter and DAQ system intellectual controller for PMT used very high energy astrophysics experiments	Nikolai Moseiko, Anatolii Klimov
15	Characterization of SiPMs for Cherenkov light detection	Rok Pestotnik
16	Developments of a mirror supporting frame, mounting scheme and alignment monitoring system of the CBM RICH detector	Jordan Bendarouach
17	Front end electronics of the Belle II Aerogel Ring Imaging detector	Rok Pestotnik
18	Front end Electronics of the Compact High Energy Camera (CHEC)	Jon Lapington, Steven Leach
19	Fully digital readout and trigger for fast Cherenkov counters	Dmitry Serebryakov

20	Neutron detection capabilities of Water Cherenkov Detectors	Ivan Sidelnik
21	Operational status of the Belle II Time-Of-Propagation counter readout and data acquisition system	Yosuke Maeda
22	Pinhole camera for study of atmospheric UV flashes and background at high altitude	Epifanio Ponce
23	Quasi-spherical modules for Cherenkov water detectors	Vasiliy Khomyakov
24	Silica aerogel radiator for the Belle II ARICH system	Makoto Tabata
25	Strategy and Automation of the Quality Assurance Testing of MaPMTs for the LHCb RICH Upgrade	Konstantin Gizdov
26	The production of the large scale aerogel radiators for use in the Ring-imaging Cherenkov detectors	Alexander Katcin
27	Cherenkov Electromagnetic Calorimeter ECAL for the HADES experiment	Oleg Petukhov
<i>Novel Cherenkov imaging techniques for future experiments</i>		
28	Preparing the ALICE-HMPID for the High-Luminosity LHC period 2021-2023	Giacinto De Cataldo
29	Prospects for future upgrade of the LHCb RICH system	Sajan Easo
<i>Remembering Pavel Cherenkov</i>		
30	From New Chigla to Stockholm	Elena Cherenkova

IN THE VICINITY OF PRESIDENT HOTEL (RESTAURANTS AND BANKS)



Restaurants 	business hours	type of food	rating out of 5	avg. bill (RUB)
1. Barin	1pm–12pm	european, russian, chef's	no	1500–2000
2. Yakimanka	9am–11pm	european, russian, asian	no	~1800
3. Mushrooms	12am–12pm	european, chinese, indian	4.8	~2500
4. Novikov school	9am–8pm	russian pies	no	~1500
5. Kopernik	12am–12pm	italian, thai	4.0	500–1500
6. Shelby	9am– 8pm, weekdays	european, mixed	3.9	~1000
7. The САД	12am–12pm	spanish, mixed	4.9	1000–2000
8. Shardam	11am–11pm	mixed, chef's	3.9	1200–2000
9. Vietcafe	11am–11pm	vietnamese, asian	4.0	1000–1200
10. Garazh	10pm– 9am	night club, pub; european, japanese	4.0	500–1000
11. Kvartira 44	12am–12pm	european, home	4.9	1000–1500
12. Abramov	9am–12pm	fusion	4.0	1500–2000

GENERAL INFORMATION

Time difference

Moscow time (CET+1 hour)

Working Hours

Most business organizations are open at 09:00-18:00, banks at 10:00-19:00. Working week runs from Monday to Friday. Many stores stay open from 10:00-22:00, 7 days a week.

Weather

Moscow weather forecast: bbc.com/weather/524901

The average temperature in Moscow in July-August is 23°/13°C. Rain: 10 days/month.

Currency

The Russian currency is Ruble. Major foreign currencies can be exchanged at banks. The exchange rate (as of July 15, 2018) is 1 US\$ ~ 62.3 RUB, 1 € ~ 72.5 RUB. Most places in Moscow accept major credit cards.

Telephone

The international dialing code for Russia is +7; the area codes for Moscow are (495) and (499)

Useful Telephone Numbers

Emergency number 112 (both from landline and mobile phones) also works for emergency calls to special services (in Russian and in English)

Public transport

# of trips	Transport	Ticket price, RUB
1	all (metro, MCC and surface transport)	55
20	all	744
unlimited	all, within 7 days after first use	830

INTERESTING PLACES IN MOSCOW

Landscape Museum-Reserve Kolomenskoe, former royal estate (UNESCO heritage): comprises four historical sites: former village of Kolomenskoe with the Tsar's Courtyard complex, Museum of Wooden Architecture, ancient gardens and parks, the landmarks dating back from XIV to XIX.

<http://mgomz.com/kolomenskoe>

Address: Andropov av., 39 (1.2 km from metro station **Kolomenskaya**②)

Park: free; **Mon - Sun:** 8 AM to 9 PM

Expositions and exhibitions: 100-500 RUB; **Tue - Sun:** 10 AM to 6 PM

The Pushkin state museum of Fine Arts: one of the largest world art collections from ancient Egypt and Greece and one of the most famous collections of Impressionist and Post-Impressionist paintings in the world. **<http://www.arts-museum.ru/museum/?lang=en>**

Address: Volkhonka st., 12 (1.8 km from President hotel, 200 m from metro station

Kropotkinskaya①)

Price: 400 RUB (600 RUB – combined ticket: main bld.+ Impresionist gallery)

Tue, Wed, Sat, Sun: 11 AM to 8 PM; **Thu, Fri:** 11 AM to 9 PM; **Closed: Mon**

Tretyakov Gallery: The second (after Russian museum in St. Petersburg) biggest collection of masterpieces of Russian art of the 11th – early 20th century.

<https://www.tretyakovgallery.ru/en/>

Address: Lavrushinsky Ln., 10 (900 m from President hotel, 400 m from metro stations

Tretyakovskaya ^{⑥⑧})

Price: 500 RUB

Tue, Wed, Sun: 10AM to 6 PM; **Thu, Fri, Sat:** 10AM to 9 PM; Closed: **Mon**

Andrei Rublev Museum of Early Russian Art (in Andronikov Monastery of the Saviour):

collection of more than ten thousand works of art: icons from the 11th – early 20th centuries, works of ornamental art, fresco fragments. <https://rublev-museum.ru/english>

Address: Andronyevskaya Sq., 10 (900 m from metro stations **Rimskaya** ^⑩/**Ploschad Ilyicha** ^⑧)

Price: 400 RUB

Mon, Tue, Thu: 2 PM to 9 PM; **Fri, Sat, Sun:** 11 AM to 6 PM; Closed: **Wed**

The Museum of Oriental Art: galleries of Chinese, Japanese, Korean, Middle Asia, Iran, Caucasus art, and an outstanding collection of art of Nicholas Roerich, world famous painter, theosophist and writer. <http://www.orientmuseum.ru/downloads/en/index.aspx>

Address: Nikitskiy blv., 12a (500 m from metro stations **Arbatskaya** ^③/**Arbatskaya** ^④)

Price: 300 RUB

Wed, Thu: 11 AM to 8 PM; **Tue, Fri, Sat, Sun:** 12 AM to 9 PM; Closed: **Mon**

The State Historical Museum: exhibitions range from relics of prehistoric tribes that lived on the territory of present-day Russia, through priceless artworks acquired by members of the Romanov dynasty. <http://en.shm.ru>

Address: Red Square, 1 (200 m from metro stations **Teatralnaya** ^②/**Ploschad Revolyutsii** ^③)

Price: 350 RUB (audioguide + 400 RUB)

Wed - Mon: 10 AM to 9 PM; Closed: **Tue**

MOSCOW TOURIST INFORMATION

City of Moscow: <http://www.moscow.info> <https://www.lonelyplanet.com/russia/moscow>

Moscow museums:

<https://www.lonelyplanet.com/russia/moscow/things-to-do/museums-and-galleries-in-moscow>

Moscow transport: <https://um.mos.ru/en/discover-moscow/transport/>

www.transport.mos.ru/en

