



Joint Institute for Power and Nuclear Research – Sosny  
National Academy of Sciences of Belarus  
Joint Institute for Nuclear Research  
National Scientific and Educational Centre of Particle and High Energy Physics  
Gomel State University  
Gomel State Technical University

# **XXXIX International Symposium on Multiparticle Dynamics**

**"Gold Sands", Gomel Region, Belarus**

**4-9 September 2009**

## **Preliminary program**

<http://ismd2009.hep.by>

**Minsk, 2009**

# Timetable

## September 4, Friday

- 17:00-21:00 Arrival and registration  
21:00-23:00 **WELCOME RECEPTION**

## September 5, Saturday

- 8:00-8:45 *Breakfast*  
8:45-9:25 **Opening session**  
9:25-11:05 **Morning session: Soft interactions**  
11:05-11:25 *Coffee break*  
11:25-13:00 **Session: Soft interactions (cont.)**  
13:00-14:00 *Lunch*  
14:00-15:50 **Afternoon session: Soft interactions (cont.)**  
15:50-16:10 *Coffee break*  
16:10-18:30 **Afternoon session: Small x physics and diffraction**  
19:00-20:00 *Dinner*  
20:00-21:00 *Folk music concert of the choir "Siveriya"*

## September 6, Sunday

- 8:00-9:00 *Breakfast*  
9:00-11:00 **Morning session: Heavy flavors**  
11:00-11:20 *Coffee break*  
11:20-13:00 **Session: Heavy flavors (cont.)**  
13:00-14:00 *Lunch*  
14:00-18:00 *EXCURSION to Gomel and a countryside museum (Rumyantsev - Paskevich Palace in the Gomel Park)*  
19:00-21:00 *A barbeque on the bank of the Sozh river*

## September 7, Monday

- 8:00-9:00 *Breakfast*  
9:00-11:05 **Morning session: Fluctuations and correlations**  
11:05-11:25 *Coffee break*  
11:25-13:00 **Session: Fluctuations and correlations (cont.)**  
13:00-14:00 *Lunch*  
14:00-16:55 **Afternoon session: Quantum properties of multiparticle states**  
16:55-17:15 *Coffee break*  
17:15-19:00 **Afternoon session: Astroparticle physics**  
19:00-20:00 *Dinner*  
20:00-22:00 *Meeting of elders*

# Timetable

## September 8, Tuesday

- 8:00-9:00 *Breakfast*  
9:00-11:00 **Morning session: High density systems**  
11:00-11:20 *Coffee break*  
11:20-13:00 **Session: High density systems (cont.)**  
13:00-14:00 *Lunch*  
14:00-18:00 **Afternoon session: High density systems (cont.)**  
20:00-23:00 *CONFERENCE BANQUET*

## September 9, Wednesday

- 8:00-9:00 *Breakfast*  
9:00-10:30 **Morning session: New Physics**  
10:30-11:10 *Coffee break*  
11:10-12:00 **Session: New Physics (cont.)**  
12:00-14:00 ***Closing Session & Conference Summary***  
14:00-15:00 *Lunch*  
15:00 Departure of the buses to Minsk and Gomel

## September 4, Friday

- 17:00      Arrival and registration  
21:00      *WELCOME RECEPTION*

## September 5, Saturday

- 8:00      *Breakfast*  
8:45      Opening session

### **Morning session: Soft interactions**

Organizers: Alexander Bakulev, Evgeni Levin, Edward Sarkisyan-Grinbaum

Chairman: E. Sarkisyan-Grinbaum

- 9:25      Systematics of parton fragmentation in electron and nuclear collisions      Tom Trainor (University of Washington, USA)  
9:50      Dependences of anomalous soft photon production on the jet characteristics in hadronic  $Z^0$  decays      Vassilii Perepelitza (ITEP, Moscow, Russia)  
10:15      Elastic and inelastic diffraction at the LHC      Laszlo Jenkovszky (in collab. with A.I. Lengyel, and Z.Z. Tarics) (BITP, NASU, Kiev, Ukraine)  
10:40      Difference in multiplicity distributions in proton-proton and proton-antiproton collisions at high energies      Natalia Radchenko (NSU, Novgorod, Russia)  
  
11:05      *Coffee break*

Chairman: E. Sarkisyan-Grinbaum

- 11:25      Underlying event characterization in a jet-based approach      Sebastian Sapeta (LPTHE, Paris, France)  
11:50      New ideas and tools in hadron jet studies      Yuri Dokshitzer (University of Paris, France)  
12:15      Phenomenological approach to  $p\bar{p}$ -p elastic scattering      Vladimir Roinishvili (JINR, AIPH, Dubna, Russia)  
12:40      New results of the extreme multiplicity study      Elena Kokoulina (in collab. with A.Kutov, V.Nikitin, & Yu.Petukhov) (JINR, Dubna, Russia)

- 13:00      *Lunch*

**Afternoon session: Soft interactions (cont.)**

Chairman: L. Jenkovszky

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|-------|---|---|
| 14:00 | Predictions for multiparticle production at LHC                                   | Alexei Kaidalov<br>(ITEP, Moscow, Russia)   |
| 14:25 | Are multiple parton interactions important at high energies? New types of hadrons | Victor Abramovsky<br>(NSU, Novgorod, Russia)  |
| 14:50 | Some soft aspects of high energy relativistic ion collisions                      | Bozena Boimska (in collab. with Helena Białkowska)<br>(INS, Warsaw, Poland)                 |
| 15:10 | Minimum Bias Physics at ATLAS   | Prafulla Behera (University of IOWA, USA)   |
| 15:30 | Baryon stopping as a test of geometric scaling                                    | Georg Wolschin, Yacine Mehtar-Tani (Institute for Theoretical Physics, Heidelberg, Germany) |
| 15:50 | <i>Coffee break</i>   |   |

**Afternoon session: Small x physics and diffraction**

Organizers: Alexei Kaidalov, Chris White

Chairman: A. Kaidalov

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|-------|--|---|
| 16:10 | Inclusive diffraction at HERA (for H1 and ZEUS Collaborations)                 | Armen Bunyatyan<br>(DESY, Hamburg, Germany)   |
| 16:40 | Exclusive diffraction at HERA  | Xavier Janssen<br>(Universiteit Antwerp, Belgium)                                     |
| 17:10 | Testing the gluon polarization in the Durham Pomeron                           | S. Baranov<br>(IP, Moscow, Russia)  |
| 17:30 | String junction transfer in QGSM   | M. Erofeeva, O. Piskunova<br>(MEPI, Moscow, Russia)                                   |
| 17:50 | Top quark decay analysis-hadronic channels including QED and QCD RC            | E. Kuraev (in collab. with A.Ali, Yu.Bystritsky)<br>(JINR, Dubna, Russia)             |
| 18:10 | Prompt photon and electroweak gauge boson production in off-shell gluon fusion | Artem Lipatov (in collab. with S.P. Baranov, N.P.Zotov)<br>(SINP MSU, Moscow, Russia) |
| 19:00 | <i>Dinner</i>  |   |
| 20:00 | <i>Folk music concert of the choir "Siveriya"</i>                              |   |

## September 6, Sunday

8:00        *Breakfast*

### **Morning session: Heavy flavors**

Organizers: Ladislav Šándor, Giorgio Torrieri

Chairman: L. Šándor

9:00        Top quark physics

Lev Dudko (SINP MSU,  
Alexander Lebedev (Iowa  
State University, Ames, USA)

9:30        Heavy flavour production at PHENIX (RHIC)

10:00       Heavy flavour and strangeness production at  
STAR (RHIC)

Olga Barannikova (Univ.  
Illinois Chicago)

10:30       Overview of strangeness production at SPS

Christoph Blume (University  
of Frankfurt, Germany)

11:00       *Coffee break*

Chairman: G. Torrieri

11:20       Study of  $Y(5S)$  decays to  $B^0$ ,  $B^+$  and  $B_s$   
mesons

Anatoly Sokolov  
(Belle Collaboration) (IHEP,  
Protvino, Russia)

11:40       Registration for neutral charmed mesons in pA-  
interactions at 70 GeV with SVD setup

Vasily Ryadovikov       (SVD-  
2 Collaboration) (IHEP,  
Protvino, Russia)

12:00       Excited charm and  $K_s^0 K_s^0$  resonance  
production at ZEUS

Volodymyr Aushev  
(DESY/INR, Hamburg,  
Germany)

12:20       Physics with first B-mesons in ATLAS

Lidia Smirnova, A.Boldyrev  
(SINP MSU, Moscow,  
Russia)

12:40       Overview on searches for new physics in  
Flavor decays

David Doll (California  
Institute of Technology,  
Pasadena, USA)

13:00       *Lunch*

14:00       *EXCURSION to Gomel and a countryside  
museum (Rumyantcev - Paskevich Palace in  
the Gomel Park)*

19:00       *A barbeque on the bank of the Sozh river*

## September 7, Monday

8:00 *Breakfast*

### **Morning session: Fluctuations and correlations**

Organizers: Mark Gorenstein, Tom Trainor

Chairman: T. Trainor

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|-------|---|--|
| 9:00  | Pion and kaon interferometry and hadronic spectra at RHIC in hydrokinetic model of A+A collisions | Yu. M. Sinyukov<br>(ITP, NASU, Kiev, Ukraine)  |
| 9:25  | Reconstruction of the Source Function in Hadronic Z-Boson Decays                                  | Tamas Csorgo (in collab. with T. Novak, T. , W. Kittel and W.J. Metzger for the L3 Collaboration) (MTA KFKI RMKI, Budapest, Hungary) |
| 9:50  | Study of femtoscopy correlations in ALICE at LHC  | Liudmila Malinina (SINP MSU, JINR, Dubna, Russia)  |
| 10:15 | Fluctuations in high-energy nuclear collisions as signature of the temperature fluctuations       | Grzegorz Wilk<br>(INS, Warsaw, Poland)   |
| 10:40 | Trying to understand the ridge effect in hydrodynamic model                                       | Y. Hama (in collab. with R. Andrade, F. Grassi and W.-L. Qian)<br>(University of São Paulo, Brazil)                                  |

11:05 *Coffee break*

Chairman: T. Csorgo

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|-------|---|---|
| 11:25 | Critical behavior at the QGP phase transition   | Tomoaki Nakamura  |
| 11:55 | $v_2(p_t)$ from 2D angular correlations and centrality evolution of the azimuth quadrupole $p_t$ spectrum | David Kettler (STAR)<br>(University of Washington, Seattle, USA)  |
| 12:25 | The ridge associated with the near-side jet in high energy-heavy-ion collisions                           | Cheuk-Yin Wong<br>(Oak Ridge National Laboratory, Oak Ridge, USA) |

13:00 *Lunch*

### **Afternoon session: Quantum properties of multiparticle states**

Organizers: Sergey Kilin, Andrey Kuzmin

Chairman: N.V. Maksimenko

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|-------|--|--|
| 14:00 | Multipartite entangled states, quantum communication and computation                       | D.B. Horoshko and S.Ya. Kilin (IP NASB, Minsk, Belarus)  |
| 14:30 | Decoherence of color in QCD vacuum   | Viacheslav Kuvshinov (JIPNR-Sosny NASB, Minsk, Belarus)  |
| 14:55 | The spin structure of proton from lp-DIS with charged current                              | E. Timoshin, S. Timoshin   |
| 15:15 | Coherent charge transport in strongly correlated systems and quasiparticle pair production | Halina Grushevskaya (BSU, Minsk, Belarus)  |
| 15:40 | Scattering QCD amplitudes with massive fermions using recursion relations                  | Viktor Andreev (GSU, Gomel, Belarus)   |
| 16:05 | Chaotic instanton approach for one-dimensional perturbed nonlinear systems                 | Vadzim Piatrou (in collab. with V.I. Kuvshinov and A.V. Kuzmin) (JIPNR-Sosny NASB, Minsk, Belarus) |
| 16:30 | Polarized Moller scattering at ILC energies  | A. A. Babich, V. A. Zykunov (GSTU, Gomel, Belarus)   |
| 16:55 | <i>Coffee break</i>  |  |

### **Afternoon session: Astroparticle physics**

Organizers: Alexander Sakharov, Oleg Smirnov

Chairman: O. Smirnov

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|-------|--|---|
| 17:15 | RIM-PAMELA PROGRAM   | Arkady Galper (MEPhI, Moscow, Russia)                                 |
| 17:40 | The solar neutrino measurements  | Yusuke Koshio (Kamioka observatory, ICRR, University of Tokyo, Japan) |
| 18:15 | Measurements of hadron production for neutrino and cosmic ray physics within NA61/SHINE experiment at CERN SPS | Magdalena Posiadala (University of Warsaw, Warsaw, Poland)            |
| 18:40 | Borexino: real-time sub-MeV Solar neutrino detection and beyond  | Oleg Smirnov (JINR, Dubna, Russia)                                    |
| 19:00 | <i>Dinner</i>  |   |
| 20:00 | <i>Meeting of elders</i>   |   |

## **September 8, Tuesday**

8:00        *Breakfast*

### **Morning Session: High density systems**

Organizer: David d'Enterria, Peter Steinberg

Chairman: Y. Dokshitzer

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|-------|---|--|
| 9:00  | Selected results from PHOBOS            | Constantin Loizides<br>(Massachusetts Institute of<br>Technology,<br>Cambridge, USA) |
| 9:30  | Soft Physics with ATLAS and CMS         | Alexander Milov (Weizmann<br>Inst. of Science, Rehovot,<br>Israel)                   |
| 10:00 | CMS status and early physics plans      | Constantin Loizides<br>(Massachusetts Institute of<br>Technology,<br>Cambridge, USA) |
| 10:30 | ALICE Overview-Early physics with ALICE | Levente Molnar<br>(CERN, Geneva, Switzerland)  |

11:00        *Coffee break*

Chairman: I. Lokthin

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|-------|--|---|
| 11:20 | The BRAHMS Experiment at RHIC - the<br>Recent Results of Forward Regime Studies            | Natalia Katrynska<br>(Smoluchowski Institute of<br>Physics, Jagiellonian<br>University, Krakow, Poland) |
| 11:45 | Heavy Quarks and Quarkonia Production at<br>RHIC as a Probe of hot and dense QCD<br>medium | Taku Gunji<br>(University of Tokyo, Japan)  |
| 12:10 | Critical Point and Onset of Deconfinement<br>(NA61/Shine)                                  | Antoni Aduszekiewicz (IEP,<br>University of Warsaw,<br>Poland)  |
| 12:35 | Self-similarity of hadron production in heavy<br>ion collisions                            | Mikhail Tokarev<br>(JINR, Dubna, Russia)  |

13:00        *Lunch*

**Afternoon session: High density systems (cont.)**

Chairman: Y. Hama

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|-------|--|--|
| 14:00 | Jet Quenching in hot and dense QCD matter                                      | Igor Lokthin<br>(SINP MSU, Moscow,<br>Russia)  |
| 14:30 | Flow, Freeze-out and correlation radii in heavy ion collisions                 | L.Bravina, G.Eyyubova,<br>L.Malinina, M.S.Nilsson,<br>E.Zabrodin (University of<br>Oslo, Oslo, Norway) |
| 15:00 | Jets at RHIC   | Jan Kapitan (STAR)   |
| 15:25 | The (K-,p) reaction on C12 at KEK  | Volodomyr Magas (University<br>of Barcelona, Spain)  |
| 15:50 | <i>Coffee break</i>  |  |
| 16:10 | Spin polarization phenomena in dense neutron matter at a strong magnetic field | A. A. Isayev (Kharkov<br>Institute of Physics and<br>Technology, Kharkov,                              |
| 16:35 | Constraints on AdS/CFT Gravity Dual Models of Heavy Ion Collisions             | Giorgio Torrieri (in collab.<br>with Jorge Noronha, Miklos<br>Gyulassy)                                |
| 17:00 | Searches for New Physics at HERA   | Daniel Pitzl (DESY,<br>Hamburg, Germany)   |
| 17:30 | SM Higgs searches in CMS and ATLAS at LHC                                      | Majid Hashemi<br>(ATLAS/CMS, University of<br>Antwerp, Belgium)  |
| 20:00 | <i>CONFERENCE BANQUET</i>  |  |

## **September 9, Wednesday**

8:00        *Breakfast*

### **Morning Session: New Physics**

Organizer: Sergei Chekanov, Alexey Gladyshev, Albert De Roeck

Chairman: M. Malinina

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|-------|---|---|
| 9:00  | Review of SM Higgs Search at the TeVatron   | P. Svoisky (CDF/D0, Fermilab, Batavia, USA)                       |
| 9:30  | Physics challenges and technical concept of the Multipurpose Detector at JINR NICA collider | V. Nikitin (JINR, Dubna, Russia)                                  |
| 10:00 | Identification of spin and $Z'$ models at the CERN LHC                                      | A.V. Tsytrinov (in collab. with P. Osland, A.A. Pankov, N. Paver) |

10:30        *Coffee break*

Chairman: A. Andreev

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|-------|---|---|
| 11:10 | Investigation of conventional and exotic resonances in pA interactions at 70 GeV/c with SVD-2 setup | V. Popov (in collab. with A. Kubarovsky, S. Lyutov, V. Volkov, L. Tikhonova) (SINP MSU, Moscow, Russia) |
| 11:35 | The QGSM approach to the search of squark hadrons as NLSP at the energy of LHC                      | O. Piskunova (in collab. with K. Belotski and A. Kaidalov) (Lebedev Physical Institute, Moscow, Russia) |

12:00        ***Closing Session & Conference Summary:***

Chairman: V. Kuvshinov

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|--|--|
| Experimental Physics Summary                                       | Edward Sarkisyan-Grinbaum & Tom Trainor (coreporter) & Vladimir Nikitin (coreporter) |
| Theoretical Physics Summary  | Mikhail Tokarev & Giorgio Torrieri (coreporter)                                      |
| What can heavy ion physics learn from physics of ultra-cold atoms? | Tamas Csorgo (MTA KFKI RMKI, Budapest, Hungary)                                      |
| Concluding remarks   | Viacheslav Kuvshinov   |
| Presentation of ISMD 2010  | Nick van Remortel  |

13:00        *Lunch*

15:00        Departure of the buses to Minsk and Gomel