

# XXXIII ISMD

## XXXIII INTERNATIONAL SYMPOSIUM ON MULTIPARTICLE DYNAMICS

Kraków, Poland 5–11 September 2003

### 1. General information

XXXIII ISMD is a small conference of a series started in 1970 in Paris and devoted to the yearly summary of most interesting results concerning the processes of multiple production of hadrons. International Advisory Committee consists of:

N.G. Antoniou (Athens)	A. Białas (Kraków)
J.D. Bjorken (SLAC)	B. Buschbeck (Vienna)
T. Csörgő (Budapest)	M. Derrick (Argonne)
E.A. De Wolf (Antwerp)	I. Dremin (Moscow)
A. Giovannini (Torino)	G. Gustafson (Lund)
R.C. Hwa (Oregon)	L. Jenkovszky (Kiev),
W. Kittel (Nijmegen)	L.-S. Liu (Wuhan)
W. Ochs (München)	L. Sandor (Kosice)
N. Schmitz (München)	A.N. Sissakian (Dubna)
C.I. Tan (Brown)	F. Verbeure (Antwerp)

The last conferences of this series were held in Tihany, Hungary (2000), Datong, China (2001) and Alushta, Ukraine (2002). During 6 days of conference there are 8–10 topical plenary sessions. There are 80–100 participants (by invitation only).

### 2. Organizers, place and time

XXXIII ISMD is organized by four institutions based in Kraków, Poland: Jagellonian University (JU), Institute of Nuclear Physics (INP), University of Mining and Metallurgy UMM) and Polish Academy of Arts and Sciences (PAAS). Conference site is Institute of Physics JU, Reymonta 4, Kraków. The local organizing committee consists of:

K. Fiałkowski (JU, chairman)	A. Białas (JU, PAAS)
W. Broniowski (INP)	A. Eskreys (INP)
J. Figiel (INP)	W. Florkowski (INP)
D. Kisielewska (UMM)	A. Kotański (JU)
J. Kwieciński (INP)	M. Różańska (INP)
K. Rybicki (INP)	W. Słomiński (JU)
J. Szwed (JU)	R. Wit (JU)
J. Wosiek (JU)	K. Zalewski (JU)

### 3. Time-table

ISMD 2003 will start on September 5<sup>th</sup>, Friday (arrival day) and end on September 11<sup>th</sup>, Thursday (closing session till lunch, the departure day). Registration will take place on the conference site before and during the morning session on September 6<sup>th</sup>. The preliminary program reads as follows:

#### September 5<sup>th</sup>, Friday

Evening: Welcome dinner  
19.00 (in each of three hotels).

#### September 6<sup>th</sup>, Saturday

Morning session: *Bose-Einstein Correlations*  
organizers: U. Heinz and K. Zalewski

**Chair: K. Zalewski**

- 9.00 H.Appelshäuser (Heidelberg): HBT at SPS and Universal Pion Freeze-out
- 9.30 R.A. Soltz (LLNL): What We Know About HBT at RHIC?
- 10.00 S. Soff (Frankfurt): Predictions from Microscopic Models on Two-Particle Correlations at RHIC
- 10.30 U. Heinz (Ohio SU): Emission Angle Dependence of HBT Radii — Theoretical Background and Interpretation
- 11.00 Coffee break

**Chair: U. Heinz**

- 11.30 M.A. Lisa (Ohio SU): Azimuthally Sensitive HBT Measurements at RHIC
- 12.00 A. Kisiel (Warsaw UT): Non-Identical Particle Correlations in STAR as a Probe of Emission Asymmetries and Radial Flow
- 12.30 N.Van Remortel (Antwerp): BEC in Hadronic WW Decays at LEP
- 13.00 L. Zawiejski (INP Kraków): BEC in DIS at HERA

Afternoon session: *Bose-Einstein Correlations* (continuation)

- 14.50 G. Alexander (Tel-Aviv U): Open Questions Related to BEC in  $e^+e^- \rightarrow$  Hadrons

*Heavy Flavours*

organizers: J. Appel and M. Róžańska

**Chair: M. Róžańska**

- 15.20 J. Appel (E791/BTeV): Heavy Flavor Production — Overview
- 15.40 E. Gottschalk (FOCUS): Beauty and Charm Production at Fixed-Target Experiments
- 16.05 M. Negrini (INFN, Ferrara - E835): Charmonium Production with  $\bar{p}$  Gas-Jet Interactions at FNAL
- 16.30 P. Pakhlov (ITEP - BELLE): Charmonium Production with  $e^+e^-$
- 16.55 Coffee break

**Chair: J. Appel**

- 17.20 A. Sciaba (ALEPH): Heavy Flavor at LEP
- 17.45 B. Olivier (DESY - H1): Review of Heavy Flavor Production in  $ep$  Collisions
- 18.10 K. Rinnert (CDF): Heavy Flavor Production at the Tevatron
- 18.35 T. Mehen (Duke): Theoretical Understanding of Heavy Flavor Production

## September 7<sup>th</sup>, Sunday

Morning session: *Particle Production and Propagation in Nuclear Matter*  
organizers: H.J. Pirner and A. Białas

**Chair: A. Białas**

- 9.00 H.J. Pirner (Heidelberg): Introduction
- 9.35 P. van der Nat (NIKHEF): Attenuation of Hadrons in Nuclei
- 10.00 V. Kolesnikov (JINR): Particle Production and Propagation in Nuclear Matter
- 10.25 A. Rybicki (CERN): Particle Production in Nuclear Matter: Highlights from  $h + p$  and  $h + A$  data at SPS Energies

**Special report:**

- 10.50 A. Sissakian (JINR): Some Problems in Physics of Very High Multiplicity
- 11.15 Coffee break

**Chair: H.J. Pirner**

- 11.30 C. Pajares (Santiago de Compostela): Universal Multiplicity and  $p_T$  Distributions and Percolation of Strings
- 12.00 A. Szczurek (INP Kraków): Unintegrated Parton Distributions and Particle Production in Hadronic Collisions

Afternoon session: *Collective Effects, Statistical Methods*  
organizers: T. Csörgő and W. Florkowski

**Chair: T. Csörgő**

- 15.00 M. Calderon (BNL): Review of Particle Spectra at RHIC
- 15.40 Y. Hama (São Paulo): Energy Dependence of the Slope Parameters in Heavy Ion Collisions
- 16.00 W. Broniowski (INP Kraków): Resonance production in a thermal model
- 16.20 R. Lacey (Stony Brook): Review of  $v_2$  in Heavy Ion Collisions
- 16.45 P. Levai (Budapest): Quark Coalescence in Bulk Matter and at High  $p_T$
- 17.05 Coffee break

**Chair: W. Florkowski**

- 17.35 M. Gaździcki (Frankfurt): An Observation of the Deconfinement Phase Transition in Nucleus–Nucleus Collisions at CERN SPS
- 17.55 A. Ster (Budapest): An Indication for Deconfinement at RHIC
- 18.15 L. Sandor (Kosice): Strange Baryon Production in Pb–Pb Collisions at CERN SPS
- 18.35 P. Fachini (BNL): Resonance Production in Au + Au and  $p + p$  Collisions at  $\sqrt{s_{NN}} = 200$  GeV
- 18.55 F. Becattini (Florence): Statistical Hadronization and Microcanonical Ensemble

## September 8<sup>th</sup>, Monday

Morning session: *Small  $x$  Physics and Saturation Effects*  
organizers: A. de Roeck, J. Kwieciński and K. Golec-Biernat

**Chair: B. Buschbeck**

- 9.00 N. Armesto (CERN): Introduction to Low  $x$  Physics and Saturation
- 9.40 E. Łobodzińska (DESY): Structure Functions at Low  $x$
- 10.05 S. Magill (ANL): Forward Jets and Forward  $\pi^0$ -s

- 10.30 P. Steinberg (BNL): Possible Evidence for Saturation Effects in the Experimental Data from RHIC  
 10.55 M. Przybycień (DESY): Recent Results on the Photon Structure Functions  
 11.20 Coffee break

**Chair: K. Golec-Biernat**

- 11.50 H. Jung (Lund): Recent Results from the CCFM Evolution and the CD Model  
 12.20 G. Gustafson (Lund): Multiple Interactions in Low  $x$  DIS and High Energy  $pp$  Scattering  
 12.40 A. Staśto (DESY): Non Linear Evolution and Saturation  
 13.00 H.J. Pirner (Heidelberg): Geometrical Scaling and Wilson Lines

AFTERNOON: SIGHTSEEING AND EXCURSIONS

**September 9<sup>th</sup>, Tuesday**

Morning session: *Correlations, Event-by-Event Analysis*  
 organizers: E. De Wolf and D. Kisielevska

**Chair: E. De Wolf**

- 9.00 V. Koch (LBNL): Event-by-Event Fluctuations, a Review  
 9.40 N. Suzuki (Matsumoto U): Analysis of Transverse Momentum Distributions at RHIC by a Stochastic Model in Hyperbolic Space  
 10.05 Y.-F. Wu (NA22) Charge Fluctuations in  $\pi^+ p$  and  $K^+ p$  Collisions at 250 GeV/c  
 10.25 Coffee break

**Chair: D. Kisielevska**

- 11.25 J. Ranft (Siegen): Learning from RHIC Data for the DPMJET Multichain Hadron Production Model  
 11.50 R. Ugoccioni (Torino): New Physics Signals in Global Event Properties of  $pp$  Collisions at LHC  
 12.15 M. Blažek (Bratislava): Anomalous Phenomena in Terms of Quantum Statistics

Afternoon session: *Astroparticle Physics*  
 organizers: P. Lipari and H. Wilczyński

**Chair: H. Wilczyński**

- 15.00 P. Lipari (Roma): Introduction  
 15.30 R. Engel (Karlsruhe): Theory of Hadronic Interactions and Its Application to Modelling of Cosmic Ray Hadronic Showers  
 16.10 A. Haungs (Karlsruhe): Cosmic Ray Astrophysics in the Knee Region  
 16.50 Coffee break

**Chair: P. Lipari**

- 17.20 J. Milke (Karlsruhe): Cosmic Ray Shower Measurements in Cascade-Grande  
 18.00 M. Teshima (MPI Munich): Measurements of Cosmic Rays in the Ultra High Energy Region  
 18.40 S. Sarkar (Oxford): New Physics in Context of Ultra High Energy Cosmic Rays

Evening: Conference dinner  
 19.30, restaurant "Hawelka", Rynek Główny 34

**September 10<sup>th</sup>, Wednesday**Morning session: *Jet Physics, QCD and MC Generators*

organizers: W. Ochs and J. Wosiek

**Chair: W. Ochs**

- 9.00 B. Gary (Riverside): Introductory Review
- 9.45 C. Gwenlan (Oxford): Review of HERA Jet Results
- 10.10 W. Metzger (Nijmegen): QCD at LEP
- 10.35 P. Demine (Saclay): Jet and Di-jet Results from Tevatron
- 10.55 Coffee break

**Chair: J. Wosiek**

- 11.25 A. Korytov (Florida U): Soft QCD Phenomena in High ET Jet
- 11.55 S. Campana (Riverside): Low Energy Unbiased Gluon Jet
- 12.05 H. Kokoulina (Gomel): The Description of  $pp$  Interactions with Very High Multiplicity at 70 GeV/c in the Two Stage Gluon Model
- 12.25 A. Banfi (NIKHEF): Event Shapes from Resummation
- 12.45 I. Dremin (LPI): Jet Calculus Problems of pQCD
- 13.05 W. Ochs (MPI Munich): Oscillating Hadron and Jet Multiplicity Moments

Afternoon session: *Jet Physics* (continuation)**Chair: J. Wosiek**

- 15.00 C. Buttar (Sheffield U): MC studies for LHC
- 15.20 V. Kuvshinov (Minsk): Gluon Instability, Squeezing and Entanglement in QCD Jet

*Diffraction Processes*

organizers: A. Kaidalov and J. Figiel

**Chair: J. Figiel**

- 15.40 K.H. Hiller (DESY): Diffraction at HERA
- 16.15 M. Gallinaro (Rockefeller U): CDF Diffractive Results from Run 2
- 16.50 Coffee break
- 17.20 M. Ruspa (Torino): Diffractive Structure Function in  $e-p$  Collisions at HERA
- 17.40 D. Szuba (UMM Kraków): Proton — Dissociative Vector Meson Production at HERA
- 18.00 R. Mizuk (ITEP): Diffractive Charmonium Production in  $pA$  Collisions at 920 GeV
- 18.20 A. Kaidalov (ITEP): Diffractive Processes at High Energies
- 18.55 K. Golec-Biernat (INP Kraków): Saturation and Diffraction

**September 11<sup>th</sup>, Thursday**Morning session: *Closing Session (History and Summary)*

organizer: K. Fiałkowski

**Chair: R. Wit**

- 10.00 A.K. Wróblewski (Warsaw): Hypernuclei: How All Began
- 11.00 Coffee break
- 11.30 G. Gustafson (Lund): Conference Summary

Note: a 5' discussion time is planned after every talk.

#### 4. Accomodation

The participants will be housed in three university hotels:

Dom Gościnny UJ, ul. Floriańska 49

Hotel Profesorski UJ, ul. Garbarska 7a

Hotel Polonez, ul. Reymonta 15

and the PAAS guest rooms, ul. Straszewskiego 27. As seen on the attached map, two hotels and guest rooms are very close to the central Market Square in the Old City, within walking distance (10–15') from the conference site; one hotel is next to the conference site. The rooms were assigned according to the wishes expressed in the registration form (on the first come — first served basis). All rooms are of similar standard.

#### 5. Meals

Breakfast is served locally in the hotels (for the PAAS rooms guests in Hotel Polonez). Lunch will be served in the university canteen in the building of Hotel Polonez, next to the conference site. A welcome dinner will be organized on the arrival day separately in each hotel; the guests of PAAS rooms shall come to the Dom Gościnny at Floriańska. Dinners on working days will be served in the canteen (except of Monday, when different sightseeing groups may choose different places, and Tuesday, when the conference dinner will be served in a restaurant on the central Market Square). The vegetarian meals are available.

#### 6. Conference fee

According to the previous announcements, the conference fee is **500 €**, to be paid at the latest at the registration. It covers accommodation, meals, social events and proceedings (to be published in *Acta Physica Polonica B*). For accompanying persons the fee is **350 €**.

#### 7. Varia

(a) Internet will be available on the conference site and in one of the hotels; a computer room next to the lecture room will serve for short checks of the e-mail and for longer sessions a special computer room will be available,

(b) over head projectors and beamers connected to a PC or laptop are available in the lecture room,

(c) detailed instructions for preparing the contributions for proceedings will be given; they may be inspected in advance on the web page of *Acta Physica Polonica B*.

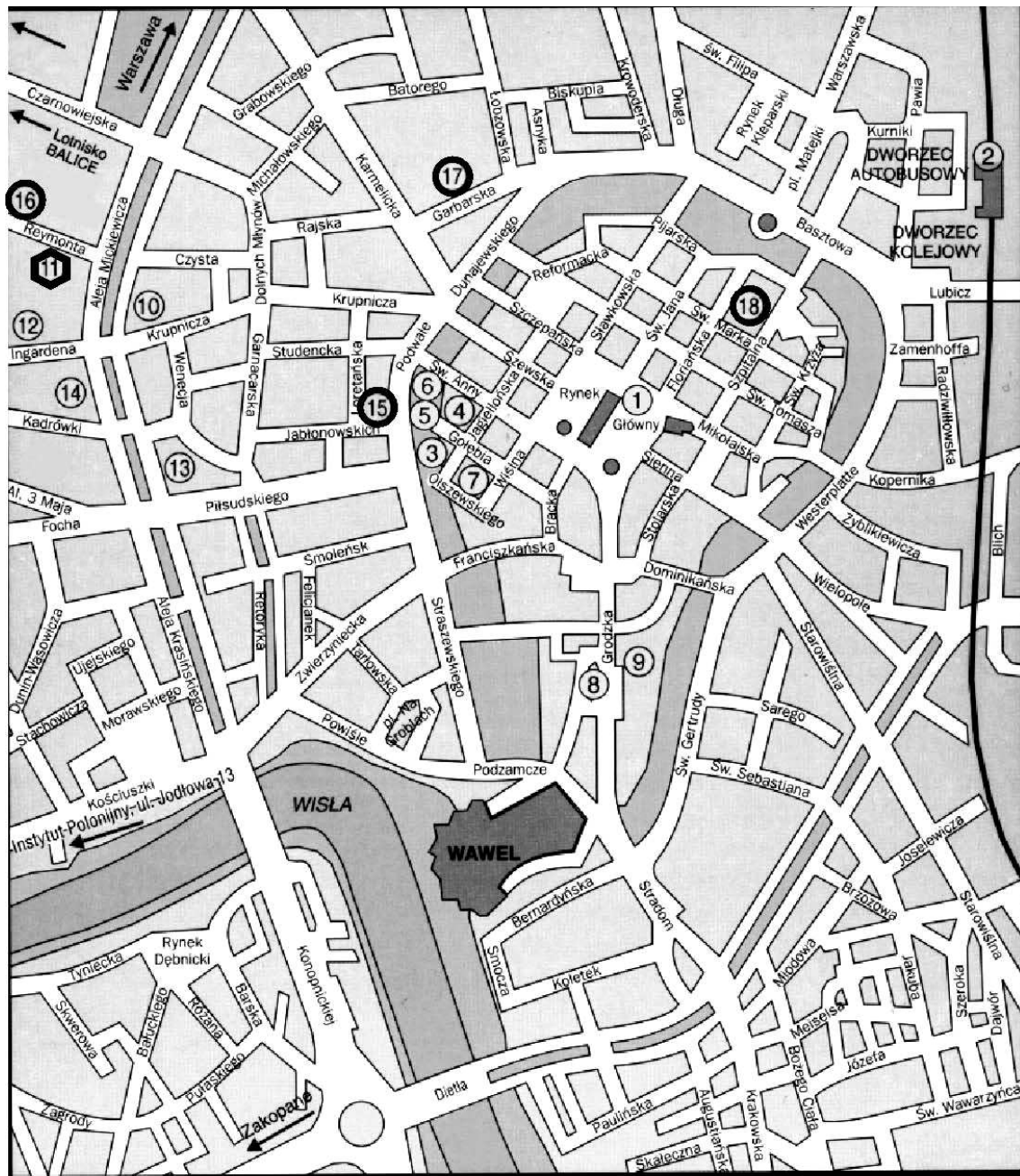
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| 1. Rynek Gł.                                   | 10. Collegium Paderevianum, Al. A. Mickiewicza 9   |
| 2. Dworzec PKP                                 | 11. <b>Collegium Physicum, ul. Reymonta 4</b>      |
| 3. Collegium Novum, ul. Gołębia 24             | 12. Collegium Chemicum, ul. R. Ingardena 3         |
| 4. Collegium Maius, ul. Jagiellońska 15        | 13. Collegium Śląskie, Al. A. Mickiewicza 3        |
| 5. Collegium Witkowskiego, ul. Gołębia 13      | 14. Biblioteka Jagiellońska, Al. A. Mickiewicza 22 |
| 6. Collegium Nowodworskiego, ul. Św. Anny 12   | 15. <b>Pokoje PAU, ul. Straszewskiego 27</b>       |
| 7. Collegium Wróblewskiego, ul. Olszewskiego 2 | 16. <b>Hotel Polonez, ul. Reymonta 15</b>          |
| 8. Collegium Iuridicum, ul. Grodzka 53         | 17. <b>Bursa im. St. Pigońia, ul. Garbarska 7a</b> |
| 9. Collegium Broscianum, ul. Grodzka 52        | 18. <b>Dom Gościnny UJ, ul. Floriańska 49</b>      |