

BEACH 2010 - IX International Conference on Hyperons, Charm and Beauty Hadrons

Monday, 21 June 2010 - Saturday, 26 June 2010

University of Perugia, Italy



Book of Abstracts

Contents

Measurement of $BR(K \rightarrow e \nu)/BR(K \rightarrow \mu \nu)$ in NA62	1
Measurement of the FCNC Decays $K^{+-} \rightarrow \pi^{+-} l^+ l^-$ in NA48	1
Measurement of $K_s \rightarrow \pi \pi e e$ decay mode at NA48	1
Precision Measurement of $\pi \pi$ Scattering Lengths in Ke_4 Decays at NA48	2
Precision Measurement of Photon Emission in $K^{+-} \rightarrow \pi^{+-} \pi^0 \gamma$ Decays at NA48	2
Measurement of the rare Decay $K^{+-} \rightarrow \pi^{+-} \gamma \gamma$ at NA48	2
Measurement of the radiative Decay $K^{+-} \rightarrow \pi^0 e^+ \nu_e \gamma$ at NA48	3
Registration	3
Registration	3
Coffee Start and Registration	3
Opening Remarks and Welcome to BEACH2010 Participants	3
Perugia through words and pictures	3
Status of LHC	4
Concluding Remarks	4
Concluding Talk 1	4
Concluding Talk 2	4
Coffee Break	4
Summary Talk	4
The perfect opaque fluid at RHIC	4
Recent Results in Precision Neutrino Physics	5
Studies of open charm and charmonium production at LHCb	5
Minimum bias physics at LHCb	5
Search for New Physics in Heavy Quark Decays at LHCb	6

Target mass corrections for polarized structure functions	6
R_{AA} of charm quarks at RHIC and LHC	6
Hadronic B decays at Belle	7
Results on CKM and CP violation at Belle	8
Belle Hot topics	8
Status and Prospects of SuperKEKB and Belle II	8
Pion Production in the HARP/PS214 experiment at CERN PS	8
Measuring KS and KL lifetimes at KLOE	9
The KLOE-2 experiment at DAFNE upgraded in luminosity	10
Charmonium results from BESIII	10
Recent results on light hadron spectroscopy at BES	10
Kaon-nucleon/nuclei interaction studies by kaonic atoms measurements (the SIDDHARTA experiment at DAFNE)	11
Kaon-nuclei interaction studies at low energies (the AMADEUS experiment)	12
New measurement of the Bs mixing phase at the Tevatron	12
Heavy Flavor Properties at CDF	12
Search for non-standard model physics in rare decays at the Tevatron	13
Contribution of the MVD to the charm spectroscopy at PANDA	13
A New High-Sensitivity Muon-Electron Conversion Search at Fermilab	13
Recent CP Violation and CKM Results from BABAR	14
Quarkonium Studies at Babar	14
Searches for New Physics at BaBar	14
Lepton flavour violation search with $\mu \rightarrow e + \gamma$ decay: The MEG experiment . . .	15
Particle production and fragmentation at HERA	15
Production of heavy flavors in ep collisions at HERA	15
Production and polarization of Lambda and Lambda-bar hyperons in Deep-Inelastic Scattering at COMPASS	16
The Fermilab Project-X Research Program	16
Lambda polarization	17
The NA62 experiment at CERN	17

Developments in Charmonium and Bottomonium Spectroscopy from CLEO	17
ATLAS status and first results	17
Lepton energy moments in semileptonic charm decays	18
Precision Measurement of $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ at Fermilab	18
Advances in Open Charm Physics at CLEO-c	18
Study of D-mesons in the hadronic channel with the ALICE detector	19
Hyperon Resonance Photoproduction at CLAS	19
Toshio Numao	20
First measurements of strange baryons and anti-baryons with the ALICE experiment in pp collisions at LHC	20
Heavy quark measurements and the new Silicon Tracker (HFT) in STAR experiment at RHIC	20
First observation for heavy flavour production from the ALICE experiment at LHC	21
Open charm production in the $D^{*+} \rightarrow D^0 \pi^+$ decay channel with ALICE	21
B Physics Results from the D0 Experiment	22
Quarkonium and Heavy Flavour Physics with the ALICE Muon Spectrometer at the LHC	22
The E391a experiment at KEK	23
Kaon Experiments at J-PARC	23
Charm and Beauty production at RHIC	23
Unitarity Triangle and New Physics	24
Status and prospects of the SuperB project	24
Heavy Flavors as a Gate to New Physics	24
Status of ATLAS and first results	24
Status of CMS and first results	25
LHCb status and minimum bias physics	25
Status of the ALICE experiment and first results on heavy flavor production	25
Coffee Break	25
Muon commissioning and Exclusive B production at CMS with the first LHC data	25
Studies of open charm and charmonium production at LHCb	26
Charmonium and beauty ATLAS physics programme	26

Study of D-mesons in the hadronic channel with the ALICE detector	26
First ATLAS results on charm production	26
Low-mass di-muons at CMS	26
Concluding Remarks	27
Higgs search prospects at LHC	27
Search for Susy and new physics at LHC	27
Beauty and charm to study new physics at future linear colliders	27
BEACH2010 Summary Talk	27
Conference Closing	28
Il Large Hadron Collider del CERN: la piu' grande macchina alle frontiere dell'ignoto	28
Expectations for first measurements of t-tbar pair production using early CMS data	28
ATLAS top physics	28
ATLAS top physics	28
ATLAS top physics	28
Quarkonium and Heavy Flavour Physics with the ALICE Muon Spectrometer at the LHC	29
Open Charm production in the $D^* \rightarrow D0 \pi^+$ decay channel with ALICE	29
Search for New Physics in Heavy Quark Decays at LHCb	29
First measurements of strange baryons and anti-baryons with the ALICE experiment in pp collisions at LHC	29
R_{AA} of charm quarks at RHIC and LHC	29
Recent CKM Element Results from BaBar and Belle	30
Recent results on CP violation and CKM UT angles from Belle and BaBar	30
Unitarity Triangle and New Physics	30
New measurement of the B_s mixing phase at the Tevatron	30
Production of Heavy Flavors in ep Collisions at HERA	31
Production of Heavy Flavors in ep Collisions at HERA	31
Production of Heavy Flavors in ep Collisions at HERA	31
Production of Heavy Flavors in ep Collisions at HERA	31
The physics program of CLAS12	31
The physics program of CLAS12	31

Particle Production and Fragmentation at HERA	32
Production and Polarization of Lambda and Lambda-bar Hyperons in Deep Inelastic Scattering at COMPASS	32
Lambda Polarization at HERMES	32
Hyperon Resonance Photoproduction at CLAS	32
Search for Non-Standard Model Physics in Rare Decays at the Tevatron	32
Recent results on quarkonia at Belle	33
Searches for New Physics at BaBar	33
Advances in Open Charm Physics at CLEO-c	33
Evidence for an Anomalous Like-sign Dimuon Asymmetry at the D0 Experiment	33
Heavy Flavor Properties at CDF	33
Hadronic B Decays at Belle	34
Lepton Energy Moments in Semileptonic Charm Decays	34
Rare K decays and ϵ_K : Theory Prediction	34
Lepton Universality tests with leptonic kaon decays	34
Results from the E391a experiment at KEK	34
CP violation tests with rare kaon decays in NA48	35
Results on radiative kaon decays and K_S and K_L lifetimes at KLOE	35
Precision measurements of kaon radiative decays	35
A new measurement of charged kaons mass	35
Kaon-nucleon/nuclei interaction studies by kaonic atoms measurements: the SIDDHARTA Experimenta at DAFNE	36
Precision measurements of pion-pion scattering length in K_{e4} decays at NA48	36
Status and Prospects of SuperKEKB and Belle II	36
Status and Prospects of the SuperB Factory	36
The Fermilab Project-X Research Program	36
The KLOE2 Experiment at DAFNE upgraded in luminosity	37
Kaon Experiments at J-Parc	37
The NA62 Experiment at CERN	37
Precision Measurement of $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ at Fermilab	37

Kaon-nuclei interaction studies at low energies: the AMADEUS experiment	37
Heavy quark measurements and the new Silicon Tracker (HFT) in STAR experiment at RHIC	38
Lepton Flavor for Hadron Flavor Physicists	38
Lepton Flavor Violation search with $\mu \rightarrow e \gamma$ decay: the MEG experiment	38
A new high sensitivity muon-electron conversion search at Fermilab	38
Precision Measurements with Pions: a review	38
Review on Neutrino Oscillations	39
Neutrinoless Double Beta Decay	39
Pion production in the HARP-PS214 Experiment at CERN-PS	39
Charmonium and Bottomonium Spectroscopy and Exotics	39
Charmonium Results from BESIII	39
Quarkonium Studies at BaBar	40
Recent Results on Light Hadron Spectroscopy at BES	40
Contribution of the MVD to the Charm Spectroscopy at PANDA	40
Charm and Beauty production at RHIC	40
The perfect opaque fluid at RHIC	41
Target mass corrections for polarized structure functions	41

2

Measurement of $BR(K \rightarrow e \nu)/BR(K \rightarrow \mu \nu)$ in NA62

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

Measurement of the helicity suppressed ratio of charged kaon leptonic decay rates $BR(K \rightarrow e \nu)/BR(K \rightarrow \mu \nu)$ has long been considered as an excellent test of lepton universality and the Standard Model (SM) description of weak interactions. It was realised recently that the suppression of the SM contribution might enhance the sensitivity to SUSY-induced effects to an experimentally accessible level. The NA62 experiment at the CERN SPS has collected a record number of over 10^5 $K \rightarrow e \nu$ decays during a dedicated run in 2007, aiming at achieving 0.5% precision. Experimental strategy, details of the analysis and preliminary results will be discussed.

3

Measurement of the FCNC Decays $K^{+-} \rightarrow \pi^{+-} l^+ l^-$ in NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

We report on measurements of the rare decays $K^{+-} \rightarrow \pi^{+-} e^+ e^-$ and $K^{+-} \rightarrow \pi^{+-} \mu^+ \mu^-$. The full NA48/2 data set was analyzed, leading to more than 7200 reconstructed events in the electronic and more than 3000 events in the muonic channel, the latter exceeding the total existing statistics by a factor of five. For both channels the selected events are almost background-free. From these events, we have determined the branching fraction and form factors of $K^{+-} \rightarrow \pi^{+-} e^+ e^-$ using different theoretical models. Our results improve the existing world averages significantly. In addition, we measured the CP violating asymmetry between K^+ and K^- in this channel to be less than a few percent.

4

Measurement of $K_s \rightarrow \pi^0 \pi^0 \pi^0$ decay mode at NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

The $K_S \rightarrow \pi^0 \pi^0 \pi^0$ decay mode has been investigated using the data collected in 2002 by the NA48/1 collaboration. With about 23k signal events and 59k $KL \rightarrow \pi^+ \pi^- \pi^0$ normalization decays, the $K_S \rightarrow \pi^0 \pi^0 \pi^0$ branching ratio was determined with respect to the KL one. This result is also used to set an upper limit on the presence of $E1$ direct emission in the decay amplitude. The CP-violating asymmetry has been also measured.

5

Precision Measurement of $\pi\pi$ Scattering Lengths in K_4 Decays at NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

The measurement of the S-wave $\pi\pi$ scattering lengths is a fundamental test of the validity of Chiral Perturbation Theory. We report on the final NA48/2 result, which uses the complete NA48/2 data set with more than a million reconstructed K_4 decays. From these events we have determined the decay form factors and $\pi\pi$ scattering lengths a_0 and a_2 . The result is the most precise measurement of the scattering lengths and in excellent agreement with the prediction of Chiral Perturbation Theory.

6

Precision Measurement of Photon Emission in $K_{+-} \rightarrow \pi_{+-} \pi_0 \gamma$ Decays at NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

We report our final result on the measurement of direct photon emission (DE) in the decay $K_{+-} \rightarrow \pi_{+-} \pi_0 \gamma$ and its interference (INT) with the inner bremsstrahlung amplitude. For this measurement the full NA48/2 data set with about 600k reconstructed $K_{+-} \rightarrow \pi_{+-} \pi_0 \gamma$ decays was analyzed, which is a factor of 30 larger than for previous experiments and a factor of three w.r.t. our preliminary result. From this, the sizes of both the DE and the INT amplitudes have been measured with high precision, with the INT amplitude being observed for the first time. In addition, a measurement of the CP violating asymmetry between K_+ and K_- has been obtained.

7

Measurement of the rare Decay $K_{+-} \rightarrow \pi_{+-} \gamma \gamma$ at NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

We report on the measurement of the branching fraction of the rare decay $K_{+-} \rightarrow \pi_{+-} \gamma \gamma$ using the full NA48/2 dataset of more than 5000 reconstructed decays from the full NA48/2 data set. From the spectrum of the invariant $\gamma\gamma$ mass, the decay parameter c^2 can be extracted with unprecedented precision.

8

Measurement of the radiative Decay $K^{+-} \rightarrow \pi^0 e^{+-} \nu_e \gamma$ at NA48

Author: Cristina Lazzeroni Lazzeroni¹

¹ *University of Birmingham*

Corresponding Author: cristina.lazzeroni@cern.ch

We report on the measurement of more than 200000 events of the decay $K^{+-} \rightarrow \pi^0 e^{+-} \nu_e \gamma$, recorded with the NA48/2 detector at CERN. These statistics, about two orders of magnitude more than previous experiments, allow measurements of the decay rate and of possible CP violation in this decay with per cent precision.

12

Registration

13

Registration

14

Coffee Start and Registration

Summary:

The registration desk will be available in "Aula 5", adjacent to the Aula Magna. Coffee will be served from 9:00 to 10:00.

Registration will continue throughout the morning, up to 12:30.

Opening Session / 15

Opening Remarks and Welcome to BEACH2010 Participants

Opening Session / 16

Perugia through words and pictures

Author: Franco Ivan Nucciarelli¹

¹ *Faculty of Humanities, University of Perugia*

Corresponding Author: freevan@virgilio.it

Opening Session / 17

Status of LHC

Author: Sergio Bertolucci¹

¹ *CERN, Geneva and INFN, LNF*

18

Concluding Remarks

19

Concluding Talk 1

20

Concluding Talk 2

21

Coffee Break

22

Summary Talk

Author: Tatsuya Nakada¹

¹ *Ecole Polytechnique Federale de Lausanne (EPFL)*

23

The perfect opaque fluid at RHIC

Author: Giorgio Torrieri¹

¹ *JW Goethe Universitat, Frankfurt*

I will give an overview of the current status of heavy ion physics, focusing on the low viscosity and high heavy quark opacity observed at RHIC. I will argue that these findings are generally incompatible with pQCD calculations, and examine the way in which methods based on gauge-string duality (AdS/CFT) can be quantitatively constrained by a joint analysis of hadronic flow and heavy quark suppression data.

This talk is based on <http://arxiv.org/abs/0906.4099>
and the general review at <http://arxiv.org/abs/0911.5479>

24

Recent Results in Precision Neutrino Physics

Author: Sanjib Mishra¹

¹ *University of South Carolina, Columbia, SC (USA)*

We present a review of recent results in precision measurements of the Standard Model cross-sections and parameters in neutrino physics. The topics include production of exclusive mesons, quasi-elastic scattering, and the inclusive neutrino-nucleon cross sections.

25

Studies of open charm and charmonium production at LHCb

Author: Monica Pepe Altarelli¹

¹ *CERN*

Corresponding Author: monica.pepe.altarelli@cern.ch

The first heavy flavour measurements at LHCb will concern open charm and J/ψ production. Charm hadrons will be reconstructed in modes such as $D^0 \rightarrow K\pi$ and $D^\pm \rightarrow K\pi\pi$ and their inclusive production observed in the forward region covered by LHCb. The inclusive J/ψ production cross section will be measured with the decay mode $J/\psi \rightarrow \mu\mu$, as a function of the J/ψ rapidity y and transverse momentum p_T , in the region $3 < y < 5$ and $p_T < 7 \text{ GeV}/c$. Contributions of J/ψ from b-hadron decays will be separated from prompt J/ψ produced directly in the pp collisions or in the decays of heavier prompt states, and the production polarisation of the prompt J/ψ component will be determined. First experiences from the 2010 LHC run will be reported, and the status of the measurements will be reviewed.

26

Minimum bias physics at LHCb

Author: Monica Pepe Altarelli¹

¹ *CERN*

Corresponding Author: monica.pepe.altarelli@cern.ch

First pp collisions at $\sqrt{s} = 0.9$ and 7 TeV have been recorded by the LHCb detector using a minimum bias trigger. These data are very valuable to commission the detector and trigger algorithms, but will also be used to perform a number of interesting minimum bias physics measurements, in the forward region covered by the LHCb detector (polar angles between 15 and 300 mrad), amongst which measurements of the prompt Kshort, Lambda, anti-Lambda, proton, anti-proton production cross sections, as well as of the Lambda transverse polarization. The motivations, ingredients and status of such measurements will be discussed, and preliminary results shown where available.

27

Search for New Physics in Heavy Quark Decays at LHCb

Author: Monica Pepe Altarelli¹

¹ CERN

Corresponding Author: monica.pepe.altarelli@cern.ch

LHCb is an experiment designed to search for evidence of new physics effects through precise measurements of decays of B and D mesons. Already with the early data from the first LHC running it is possible to assess the performance of the detector and to understand better the potential of the LHCb flavour programme. Highlights of these early data will be presented and the physics reach of LHCb in certain key CP-violation and rare decay measurements will be discussed. Emphasis will be given to those topics where results with particular sensitivity to new physics are expected during the present 2010-11 run.

28

Target mass corrections for polarized structure functions

Author: Sara Taheri Monfared¹

Co-author: Ali Khorramian²

¹ Semnan university

² IPM and Semnan university

Corresponding Author: sara_taherimonfared@yahoo.com

Polarized deep inelastic scattering (DIS) data are analyzed in leading and next-to-leading order of QCD within the common 'standard' scenario of polarized parton distributions. Due to recent high precision measurements in COMPASS we also present an updated, more accurate, version of our calculations. We perform a global fit to the existing data including mass corrections and we study the effect of these corrections on physically interesting quantities. We conclude that mass corrections are generally small, and compatible with current estimates of higher twist uncertainties, when available.

R_{AA} of charm quarks at RHIC and LHC

Author: Begum Umme Jamil¹

Co-author: Dinesh K. Srivastava¹

¹ Variable Energy Cyclotron Centre, Kolkata

Corresponding Author: ummejamil@gmail.com

We estimate nuclear modification factor R_{AA} at more forward rapidities of charm quarks/antiquarks produced from the initial fusion of partons in a nuclear collision, taking in to account the shadowing effect for nucleus-nucleus collision as well as the energy loss suffered by them while passing through Quark Gluon Plasma.

Summary:

Charm quarks/antiquarks are expected to be produced at the initial fusion of the ultrarelativistic heavy-ion collisions. Just after the production, they will propagate through the quark gluon plasma and will lose energy by colliding with quarks and gluons and radiating gluons.

We have considered DGLV [1], ASW [2] and XDZR [3] formalisms for the calculation of medium-induced radiative energy loss and BT [4], PP [5] and Bjorken [6] formalisms for the calculation of collisional

energy loss. The shadowing effect is introduced by using EKS 98 parameterization for structure functions [7].

For charm quark energy loss at Pb+Pb collision @ 5.5A TeV, we see that once p_T is of the order of 10 GeV or more the radiative energy loss dominates over the collisional energy loss. But at Au+Au collision @ 200A GeV, radiative energy loss predicted by ASW formalism dominates over collisional energy loss after $p_T=5$ GeV or more. R_{AA} is calculated considering PP formalism for collisional energy loss and DGLV and ASW formalisms for radiative energy loss. At forward rapidities R_{AA} of charm quarks/antiquarks shows more suppression at Pb+Pb collision @ 5.5A TeV but less suppression at Au+Au collision @ 200A GeV.

More suppression is observed when going from RHIC energy to LHC energy.

References:

- [1] M. Djordjevic and M. Gyulassy, *npa* **{\bf 733}** 265 (2004).
- [2] N.Armento, C. A. Salgado, and U. A. Wiedemann, *prd* **{\bf 69}**, 114003 (2004).
- [3] W.C.Xiang, H. T. Ding, D. C. Zhou, and D. Rohrlich, *epja* **{\bf 25}**, 75 (2005).
- [4] E.Braaten and M.H.Thoma, *prd* **{\bf 44}**, 2625 (1991).
- [5] S.Peigne and A.Peshier, *prd* **{\bf 77}**, 114017 (2008).
- [6] J.D.Bjorken,FERMILAB-PUB-82/059-THY(1982).
- [7] K. J. Eskola, V.J. Kolhinen, and C.A. Salgado, *epjc* **{\bf 9}** 61 (1999).

Hadronic B decays at Belle

Author: Yoshihide Sakai¹

¹ KEK

Corresponding Author: yoshihide.sakai@kek.jp

Belle experiment has accumulated more than 500 million BB-bar pairs at Upsilon(4S). B-mesons decay to hadrons in various decay modes and these provide valuable opportunities to study hadronic interactions, properties of hadrons, and heavy flavor physics.

We report recent Belle results on hadronic B decays into vector-vector mesons, charmed mesons and baryons.

31

Results on CKM and CP violation at Belle

Author: Yoshihide Sakai¹

¹ *KEK*

Corresponding Author: yoshihide.sakai@kek.jp

The Belle experiment has measured various quantities of the Unitarity Triangle of CKM quark-mixing matrix, including its angles and sides. The precise measurements of these quantities provides the check of the Standard Model and also are sensitive to the New Physics effects. The recent results on these measurements and current status on New Physics effects are reported.

32

Belle Hot topics

Author: Yoshihide Sakai¹

¹ *KEK*

Corresponding Author: yoshihide.sakai@kek.jp

We report recent and interesting results from Belle experiment which are not covered by other two Belle talks.

41

Status and Prospects of SuperKEKB and Belle II

Author: Yoshihide Sakai¹

¹ *KEK*

Corresponding Author: yoshihide.sakai@kek.jp

We report on the status and plan of the upgrade of the KEK B-factory accelerator, SuperKEKB, with the goal of instantaneous luminosity of $8 \times 10^{35} \text{ cm}^{-2} \text{ s}^{-1}$, which is about 40 times higher than current KEKB. Together with the accelerator, the Belle detector will be upgraded as well ("Belle II"), with significant improvements to increase its background tolerance as well as improving its physics performance. The prospects of physics achievements at SuperKEKB and Belle II are also reported.

42

Pion Production in the HARP/PS214 experiment at CERN PS

Author: Mauro Mezzetto¹

¹ *PD*

Final results for the production of charged forward pions in the angular range $0.025 < \theta < 0.250$ rad and in the momentum range $0.5 < p < 8.0$ GeV/c will be presented together with final results for the production at large angles $0.35 < \theta < 2.15$ rad and in the momentum range $100 < p < 800$ MeV/c. Data have been taken with incident protons or pions in the range 1.5-15 GeV/c with thin Be, C, Al, Cu, Sn, Ta, Pb solid targets, with thick (1 interaction length) C, Ta, Pb solid targets (large angle production) and with N₂, O₂ cryogenic targets with the large acceptance HARP experiment at CERN PS. For incident pions the presented data represent the first experimental campaign to systematically measure forward pion hadroproduction. Results have been compared with GEANT4 and MARS MonteCarlo simulations and parametrized (for incident protons) for easy use. The results may be useful for simulation of existing neutrino beamlines, atmospheric neutrinos fluxes, extensive air shower (by reducing the uncertainties of hadronic interaction models in the low energy range), for the tuning of available QCD inspired Monte Carlo simulations and for simulation of future Neutrino Factory beamlines.

Summary:

Final results for the production of charged forward pions in the angular range $0.025 < \theta < 0.250$ rad and in the momentum range $0.5 < p < 8.0$ GeV/c will be presented together with final results for the production at large angles $0.35 < \theta < 2.15$ rad and in the momentum range $100 < p < 800$ MeV/c. Data have been taken with incident protons or pions in the range 1.5-15 GeV/c with thin Be, C, Al, Cu, Sn, Ta, Pb solid targets, with thick (1 interaction length) C, Ta, Pb solid targets (large angle production) and with N₂, O₂ cryogenic targets with the large acceptance HARP experiment at CERN PS. For incident pions the presented data represent the first experimental campaign to systematically measure forward pion hadroproduction. Results have been compared with GEANT4 and MARS MonteCarlo simulations and parametrized (for incident protons) for easy use. The results may be useful for simulation of existing neutrino beamlines, atmospheric neutrinos fluxes, extensive air shower (by reducing the uncertainties of hadronic interaction models in the low energy range), for the tuning of available QCD inspired Monte Carlo simulations and for simulation of future Neutrino Factory beamlines.

43

Measuring KS and KL lifetimes at KLOE

Author: Erika De Lucia¹

Co-author: Collaboration KLOE²

¹ *LNF*

² *LNF-INFN*

Corresponding Author: erika.delucia@lnf.infn.it

A phi-factory offers the possibility to select pure kaon beams: neutral kaons from $\phi \rightarrow K_S K_L$ are in fact produced in pairs and the detection of a K_S (K_L) tags the presence of a K_L (K_S). This allows to perform precise measurement of kaon properties. We are presently finalizing new determinations of the K_L and K_S lifetimes using the whole KLOE data set, consisting of more than 10^9 $\phi \rightarrow K_S K_L$ decays. Both determinations benefit from a precise knowledge of kaon momenta.

The KL lifetime, which has been already measured by KLOE with 0.6% accuracy using 20% of the total data sample (PLB 626, 2005, 15), will be extracted from the proper time distribution of $KL \rightarrow 3\pi^0$ decays, tagged by a $KS \rightarrow \pi^+\pi^-$ decay on the opposite hemisphere of the apparatus. A competitive measurement of the KS lifetime is obtained from the proper time distribution of $KS \rightarrow \pi^+\pi^-$ decays.

45

The KLOE-2 experiment at DAFNE upgraded in luminosity

Author: Erika De Lucia¹

Co-author: Collaboration KLOE²

¹ LNF

² LNF-INFN

Corresponding Author: erika.delucia@lnf.infn.it

The KLOE experiment at the DAFNE e+e- collider of the Frascati Laboratories of INFN is going to start a second data-taking campaign (KLOE-2). The detector has been upgraded with small angle electron taggers, while the insertion near the interaction point of an inner tracker is planned for the next year.

The interaction region of DAFNE has been modified using a crabbed waist scheme. It has been successfully

tested and an improvement in luminosity of about a factor 3 is expected.

The KLOE-2 scientific program aims to further improve the experimental studies on kaon and low energy hadron physics, e.g. CKM unitarity and Lepton universality, CPT symmetry and quantum mechanics, low energy QCD, gamma-gamma physics, the contribution of hadron vacuum polarization to muon anomalous moment.

46

Charmonium results from BESIII

Author: Jingzhi Zhang¹

¹ IHEP

Corresponding Author: jingzhi@ihep.ac.cn

We present the recent results on charmonium spectroscopy and charmonium decays based on a data sample of 106M ψ' recorded with the BESIII detector at BEPCII. The report includes:

- 1, The first measurement of the transition rates of $\psi' \rightarrow \pi^0 h_c$, $h_c \rightarrow \gamma \eta_c$, and improved measurements of the mass and width of the h_c ;
- 2, Study of $\chi_{cJ} \rightarrow VV$, with VV being $\phi\phi$, $\omega\omega$, and $\omega\phi$, $\chi_{cJ} \rightarrow \omega\phi$ as well as $\chi_{c1} \rightarrow \omega\omega$ and $\phi\phi$ are first observations;
- 3, Improved measurements of the branching fractions of χ_{cJ} decays into two neutral pseudoscalar meson pairs, including $\chi_{c0,2} \rightarrow \pi^0\pi^0$ and $\chi_{c0,2} \rightarrow \eta\eta$.

47

Recent results on light hadron spectroscopy at BES

Author: Xiaobin Ji¹

¹ *Institute of High Energy Physics, CAS, Beijing*

Corresponding Author: jixb@ihep.ac.cn

With 58M J/ψ events at BESII, an anomalous enhancement, $X(1860)$, near the mass threshold in the $p\bar{p}$ invariant mass spectrum from $J/\psi \rightarrow \gamma p\bar{p}$ decays was reported. And a resonance named $X(1835)$ is also observed in $\eta'\pi^+\pi^-$ invariant mass spectrum from $J/\psi \rightarrow \gamma\eta'\pi^+\pi^-$. Whether $X(1860)$ and $X(1835)$ are the same resonance or not needs further confirmation.

With 100M $\psi(2S)$ events collected at BESIII, the $p\bar{p}$ threshold enhancement $X(1860)$ is confirmed in the decays of

$\psi(2S) \rightarrow \pi^+\pi^- J/\psi$, $J/\psi \rightarrow \gamma p\bar{p}$. The mass and width of $X(1860)$ are consistent with those from BESII data. It is also confirmed in $J/\psi \rightarrow \gamma p\bar{p}$ with 200M J/ψ data sample.

The decays of $J/\psi \rightarrow \gamma\eta'\pi^+\pi^-$ are examined too.

The resonance $X(1835)$

is confirmed with a much higher statistical significance. We also study the isospin breaking process $J/\psi \rightarrow \phi f_0(980)$ for the study of $a_0(980)$ and $f_0(980)$ mixing. The preliminary results are presented.

48

Kaon-nucleon/nuclei interaction studies by kaonic atoms measurements (the SIDDHARTA experiment at DAFNE)

Author: Diana Laura Sirghi¹

¹ *LNF*

Corresponding Author: diana.laura.sirghi@lnf.infn.it

The SIDDHARTA experiment (Silicon Drift Detector for Hadronic Atom Research by Timing Application) had the aim to perform a precise measurement of K-series kaonic hydrogen x-rays and the first-ever measurement of the kaonic deuterium x-rays to determine the strong-interaction energy-level shifts and widths of the lowest lying atomic states.

These measurements offer a unique possibility to precisely determine the isospin-dependent kaon nucleon(KN) scattering lengths which are directly connected with the physics of the KN interaction.

The experiment combined the excellent low-energy kaon beam generated at DAFNE, allowing to use gaseous targets, with excellent fast X-rays detectors: Silicon Drift Detectors. SIDDHARTA was installed on DAFNE in autumn 2008 and took data till late 2009.

Apart of the kaonic hydrogen and kaonic deuterium measurements, we have performed the kaonic helium transitions to the 2p level (L-lines) measurements: for the first time in a gaseous target for He4 and for the first time ever for KHe3.

In this talk, an overview of this experiment and recent results will be presented, together with future plans.

49

Kaon-nuclei interaction studies at low energies (the AMADEUS experiment)

Author: Kristian Piscicchia¹

¹ *LNF INFN*

Corresponding Author: kristian.piscicchia@lnf.infn.it

The AMADEUS experiment [1,2] aims to perform dedicated precision studies in the sector of low-energy kaon-nuclei interaction at the DAFNE collider at LNF-INFN. In particular, the experiment plans to perform measurements of the so-called (very debated) deeply bound kaonic nuclei and, if existent, to measure their properties (binding energies and widths) by using the process of stopped kaons in cryogenic gaseous targets (He3 and He4). AMADEUS will measure all particles coming from negative kaons stopped in these targets, so performing a full study of various interaction channels. Other important measurements proposed by AMADEUS are the low-energy interaction studies of negative kaons in various targets. The kaon beam is ideal (low-energy kaons from the phi-decay at DAFNE) and the setup, an implementation in the central region of the KLOE detector with dedicated additional items, is having very good performances (high acceptance and capacity to measure charged and neutral particles with excellent resolution).

The results of AMADEUS will give a boost to the sector of non-perturbative QCD in the strangeness sector.

The physics program, preliminary results from analysis of KLOE data and future plans will be presented.

[1] AMADEUS Letter of Intent, {http://www.lnf.infn.it/esperimenti/siddharta/LOI_AMADEUS_March2006.pdf}

[2] The AMADEUS collaboration, LNF preprint, LNF-07/24(IR) (2007).

50

New measurement of the Bs mixing phase at the Tevatron

Author: Giorgio Chiarelli¹

¹ *PI*

Corresponding Author: giorgio.chiarelli@pi.infn.it

51

Heavy Flavor Properties at CDF

Author: Giorgio Chiarelli¹

¹ *PI*

Corresponding Author: giorgio.chiarelli@pi.infn.it

Large production rates, efficient triggers, a precise tracker, and mature analysis techniques make CDF a major player in the study of properties of heavy flavored particles. In this review of recent results we report studies of exotic XYZ states and world-leading measurements of B hadron lifetimes and charm baryon masses.

52

Search for non-standard model physics in rare decays at the Tevatron

Author: Giorgio Chiarelli¹

¹ *PI*

Corresponding Author: giorgio.chiarelli@pi.infn.it

Quantities related to B decays that are strongly suppressed in the standard model may provide early indications of non-SM physics. CDF has the world's largest heavy flavor samples and can explore rare decays with unprecedented sensitivity. We present the first observation of $B0_s \rightarrow \phi\mu^+\mu^-$ decays (the rarest $B0_s$ decays observed), a measurement of forward-backward asymmetry in $B0$ to $K^*\mu^+\mu^-$ competitive with world-leading results, and the first measurement of polarization amplitudes in $B0_s \rightarrow \phi\phi$ decays.

53

Contribution of the MVD to the charm spectroscopy at PANDA

Author: Thomas Würschig¹

Co-authors: Hans-Georg Zaunick¹; Kai-Thomas Brinkmann¹; Marius C. Mertens²; Ralf Kliemt¹; René Jäkel³; Simone Bianco¹; Tobias Stockmanns²

¹ *HISKP, Uni Bonn*

² *IKP, FZ Jülich*

³ *TU Dresden*

Corresponding Author: t.wuerschig@hiskp.uni-bonn.de

The Micro-Vertex-Detector (MVD) is the innermost detector of the PANDA experiment, one of the key projects at the future FAIR facility in Darmstadt.

In particular, the experiment is designed to render possible precision spectroscopy in the charmonium sector. This includes the study of open-charm mesons and baryons, charmonia and exotic states.

The distance of the innermost MVD layers to the nominal primary interaction vertex will be 20 mm only. A high vertex resolution of better than 100 μm can be achieved allowing a proper separation of secondary vertices of short-lived particles, e.g. D-mesons, from the primary interaction vertex. Furthermore, the information of the first hit points in the MVD improves the momentum resolution significantly. The impact of these features on the PANDA physics program in the charm sector will be presented including the reconstruction of charmed mesons and possibly exotic states such as the X(3872). Due to the implementation of a detailed detector model in the physics simulation the impact of a realistic material budget on the physics performance is included.

The work was supported by EU Dirac FP6 and BMBF.

54

A New High-Sensitivity Muon-Electron Conversion Search at Fermilab

Authors: Rob Kutschke¹; Robert Bernstein Bernstein¹

¹ *Fermilab*

Corresponding Author: rhbob@fnal.gov

Mu2e will search for coherent, neutrino-less conversion of muons into electrons in the field of a nucleus, with a sensitivity improvement of a factor of 10,000 over existing limits. Such a lepton flavor-violating reaction probes new physics at a scale unavailable by direct searches at either present or planned high energy colliders. The physics motivation for Mu2e will be presented, as well as the design of the muon beamline and spectrometer. A scheme by which the experiment can be mounted in the present Fermilab accelerator complex will be described. Prospects for increased sensitivity from the Project X linac that is being proposed by Fermilab will be discussed.

55

Recent CP Violation and CKM Results from BABAR

Author: Michael Roney¹

Co-author: TBD TBD²

¹ *University of Victoria*

² *TBD*

Corresponding Author: mroney@uvic.ca

We report on a variety of recent studies of CP violation using data collected with the Babar detector at the SLAC e+e- asymmetric collider B-factory operating on the Upsilon(4S). These include measurements associated with the angles of the unitarity triangle of the Cabibbo-Kobayashi-Maskawa quark mixing matrix as well as searches for CP violation in charm decays. Babar measurements of the CKM elements will also be presented with a focus on recent measurements of $|V_{ub}|$.

56

Quarkonium Studies at Babar

Authors: Michael Roney¹; TBD TBD²

¹ *University of Victoria*

² *TBD*

Corresponding Author: mroney@uvic.ca

We report on a number of measurements of charmonium and charmonium-like states using data collected by the Babar detector at the SLAC e+e- asymmetric collider B-factory. Recent results from the analysis of data collected at the Upsilon(2S) and Upsilon(3S) will also be presented.

57

Searches for New Physics at BaBar

Authors: Michael Roney¹; TBD TBD²

¹ *University of Victoria*

² *TBD*

Corresponding Author: mroney@uvic.ca

We report on searches for new physics in the data collected by the Babar detector at the SLAC e+e- asymmetric collider B-factory. These include searches in rare B, charm and tau decays and in searches for non-standard decays of the Upsilon(2S) and Upsilon(3S).

59

Lepton flavour violation search with $\mu \rightarrow e + \gamma$ decay: The MEG experiment

Author: Hiroaki Natori¹

¹ *Univ. of Tokyo*

The MEG experiment started to search for $\mu \rightarrow e + \gamma$ decay, which is strictly forbidden in Standard model, while new theories, such as super symmetric grand unified theory and seesaw model of neutrinos, predict observable branching ratio just below the current upper limit. This talk reviews the result of the initial three months of operation of the MEG experiment in 2008 and some latest news.

64

Particle production and fragmentation at HERA

Author: Cristinel Diaconu¹

¹ *Centre de Physique des Particules de Marseille and DESY*

The electron proton collisions at HERA provide an unique test-bed for models of particle production, fragmentation and also for spectroscopy. Data collected during HERA II period reached full precision due to refined calibrations and conceptual improvements in the reconstruction. The results obtained recently include measurements on scaled momentum distributions of charged particles, which can be compared with similar studies at e+e- colliders. For the first time a significant charge particle asymmetry has been measured in events at high Q², in agreement with the expectations from valence quarks contributions at large fractional momentum. The production of strange particles allows to test models of flavor-dependent fragmentation. The production of exotic particles (including pentaquarks) has been investigated including the full statistics.

65

Production of heavy flavors in ep collisions at HERA

Author: Cristinel Diaconu¹

¹ *Centre de Physique des Particules de Marseille and DESY*

The production of hadrons containing a heavy quark is one of the most sensitive test of QCD. At HERA, besides the investigation of production models incorporating multi-scale dependence, the production of heavy flavored hadrons is used to constrain the parton distribution functions, with important implications for LHC physics. Recent measurements by H1 and ZEUS experiments have been obtained using the HERA II data set and various tagging techniques (leptons, lifetime) for both photo-production and deep-inelastic scattering. The results are in agreement with theoretical calculations. The DIS data have been combined recently to obtain a precise determination of the charm content of the proton and the impact of the combined data on the parton distribution functions have been investigated.

66

Production and polarization of Lambda and Lambda-bar hyperons in Deep-Inelastic Scattering at COMPASS

Author: Vadim Alexakhin¹

¹ *JINR Dubna*

Corresponding Author: vadim.alexakhin@cern.ch

Lambda and Lambda-bar hyperons were produced at the COMPASS experiment at CERN, using Deep-Inelastic Scattering (DIS) of 160 GeV/c polarized muons on a longitudinally polarized target.

The study of Lambda and Lambda-bar hyperons in DIS is important for the understanding of the nucleon structure, the mechanisms of hyperon production and the hyperon spin structure. In particular, it may provide valuable information on the unpolarized strange quark distributions $s(x)$ and $s\text{-bar}(x)$ in the nucleon.

The data sample contains about 70 000 Lambda and 42 000 Lambda-bar. Large and comparable statistics on both Lambda and Lambda-bar hyperons is a distinct feature of the COMPASS experiment. Preliminary results on the multiplicities of Lambda and Lambda-bar production, polarization of Lambda and Lambda-bar and yields of heavy hyperons in DIS are presented.

67

The Fermilab Project-X Research Program

Author: Robert Tschirhart¹

¹ *Fermilab*

Corresponding Author: tsch@fnal.gov

Fermilab is leading an international consortium to develop the design of "Project-X" which is an accelerator complex that will drive a broad range of experiments at the Intensity Frontier. The Project-X research program includes world-leading sensitivity in long-baseline neutrino experiments, neutrino scattering experiments, and a rich program of ultra-rare decay and electric dipole moment experiments that are sensitive to most new physics scenarios beyond the Standard Model. These experiments are driven with very high fluxes of neutrinos, muons, kaons, hyperons and exotic nuclei that are possible with Project-X. The status and prospects of the growing research program will be discussed.

68

Lambda polarization

Author: Yura Naryshkin¹

¹ *PNPI*

Corresponding Author: naryshk@mail.desy.de

Lambda and antiLambda hyperon polarization data obtained in the HERMES experiment at 27.57 GeV positron beam are overviewed. The spin transfer from the longitudinally polarized beam Dll has been measured in DIS regime. Kinematical dependencies of spin transfer coefficient Dll are presented.

Transverse Lambda and antiLambda polarization and spin transfer coefficient Kll from longitudinally polarized target to Lambda produced inclusively in quasi-real photon-nucleon scattering have been studied for series of nucleus target in a wide range of atomic numbers A. Dependencies of the Lambda and antiLambda polarization on kinematical variables, and also A-dependence of Lambda polarization is discussed.

69

The NA62 experiment at CERN

Author: Cristina Lazzeroni¹

¹ *University of Birmingham (UK)*

The NA62 experiment aims to collect of the order of 100 K^+ to π^+ ν $\bar{\nu}$ decays with a 10% level of background. Studies using Monte Carlo simulation of the apparatus and data from test beam runs were performed to assess the expected sensitivity of the apparatus.

The results about signal acceptance and background rejection will be presented.

70

Developments in Charmonium and Bottomonium Spectroscopy from CLEO

Author: Kamal Seth¹

¹ *Northwestern University*

CLEO has an active program in the spectroscopy of charmonium and bottomonium hadrons. Recent developments in the discovery and confirmation of spin-singlet states in charmonium and bottomonium, searches for threshold resonances, precision measurements of hadron masses and decays, and others will be reviewed.

71

ATLAS status and first results

Author: Luc Poggioli¹

¹ *LAL, Orsay, France*

The LHC has resumed operation with the first p-p collisions at 7 TeV on March 30th, 2010. The ATLAS detector is now collecting data with a prospect to integrate few pb⁻¹ of luminosity in the first months.

The talk will present an overview on detector performance and physics.

72

Lepton energy moments in semileptonic charm decays

Author: Jernej Kamenik¹

Co-author: Paolo Gambino²

¹ *Jozef Stefan Institute*

² *Univ. Torino & INFN Torino*

Corresponding Author: jernej.kamenik@ijs.si

We search for signals of Weak Annihilation in inclusive semileptonic D decays. We consider both the widths and the lepton energy moments, which are quite sensitive probes. Our analysis of Cleo data shows no clear evidence of Weak Annihilation, and allows us to put bounds on their relevance in charmless B semileptonic decays.

73

Precision Measurement of $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ at Fermilab

Author: Robert Tschirhart¹

¹ *Fermilab*

Corresponding Author: tsch@fnal.gov

The $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ process is both highly suppressed and calculable with high accuracy within the Standard Model. The rate of this process is consequently sensitive to most new physics scenarios beyond the Standard Model. A precision measurement of $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ would be one of the more incisive probes of quark flavor physics this decade. The experimental challenge to date of measuring $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ is from the 8 in 100-billion Standard Model rate. Several candidate events of the $K^+ \rightarrow \pi^+, \nu, \bar{\nu}$ process have been observed using the full resources of the AGS accelerator at BNL. CERN is now actively pursuing a 100-event (Standard Model) sensitivity experiment using a new technique driven by the SPS. Operating the Fermilab Tevatron after Run-II as a 150 GeV high-duty factor synchrotron "Stretcher" offers the opportunity to mount a 1000-event experiment based on the techniques developed and demonstrated at the BNL AGS. The Tevatron Stretcher would be a unique facility that would provide nearly ideal properties for rare-decay experiments, allowing the demonstrated performance of the AGS experiment to be extrapolated with confidence to an experiment driven by the Tevatron Stretcher at Fermilab. A proposal (Fermilab P996) submitted to Fermilab has received strong scientific support, and the P996 collaboration is now working with US funding agencies. The status and prospects of the P996 initiative will be presented and discussed.

75

Advances in Open Charm Physics at CLEO-c

Author: Paras Naik¹

¹ *University of Bristol*

Cornell's Laboratory for Elementary Particle Physics hosts the CLEO-c experiment, which over the last several years, has collected data near the charm production threshold. The full data sample, now completely in hand, includes over 10 million D mesons - a particle containing a charm quark and an anti-up or anti-down quark, approximately 1.2 million Ds mesons - a particle containing a charm quark and an anti-strange quark. These unprecedented "charm" data samples were collected in the superb CLEO-c detector, which provides excellent electromagnetic calorimetry, charged particle tracking and identification, and near 4pi solid angular coverage.

A survey of CLEO Open Charm results will be presented. These results substantially extend the reach and understanding of heavy flavor physics. The world community will benefit as results from CLEO-c extend the reach of the Belle experiment at KEK and LHCb experiment at CERN and lay foundations for the physics program of the BESIII experiment in China.

79

Study of D-mesons in the hadronic channel with the ALICE detector

Author: Renu Bala¹

¹ *TO*

At LHC energy, heavy quarks will be abundantly produced and the design of the ALICE Experiment will allow us to study their production using several channels. We investigate the feasibility of the study of D mesons reconstructed in their exclusive hadronic decay channel.

After reviewing the ALICE potential for such studies, we will present some results for the two more promising decay channel i.e D0->KPi and D+->KPiPi obtained at with 7 TeV data.

80

Hyperon Resonance Photoproduction at CLAS

Author: Kenneth Hicks¹

¹ *Ohio University*

Corresponding Author: hicks@ohio.edu

The photoproduction of hyperons and hyperon resonances is studied with the CLAS detector at Jefferson Lab using beams of photons in the energy range of 1 to 4 GeV. Much has been learned about how to theoretically model the photoproduction of the ground-state hyperons, including surprisingly simple rules of spin-transfer from the photon to the hyperon, leading to the introduction of new nucleon resonances that are not strongly observed in pion-scattering partial wave analysis (PWA). In addition, data on *K* photoproduction has extended the theoretical modeling to strange vector mesons and how their spin couples to the hyperon final state. Hyperon resonances are now being studied at CLAS, including the *Lambda* resonances at 1405 MeV and 1520 MeV, and the *Sigma** resonance at 1385 MeV. New results from CLAS will be presented.

Summary:

The results on kaon-hyperon photoproduction suggest that a new nucleon resonance is seen at about 1900 MeV, which couples strongly to this production channel. Nearly complete spin-transfer from the photon to the hyperon is observed for few-GeV photons. In contrast, new data for K^* photoproduction shows a much smaller spin-transfer, suggesting that some of the spin is transferred to the vector meson. New data on the $\Lambda(1405)$ shows a marked deviation from expected isospin-symmetric decays, which suggests interference due to poles of dynamically-generated intermediate resonances. New results for the radiative decay of $\Sigma(1385)$ will also be presented.

81

Toshio Numao

Author: Toshio Numao¹

¹ TRIUMF

Corresponding Author: toshio@triumf.ca

The branching ratio of pion decays, $R=B(\pi \rightarrow e \nu)/B(\pi \rightarrow \mu \nu)$, has provided the best test of electron-muon universality in weak interactions. While the Standard Model prediction is $R=(1.2353 \pm 0.0001) \times 10^{-4}$, the existing experimental results, $R=(1.2265 \pm 0.0056) \times 10^{-4}$ (TRIUMF) and $R=(1.2346 \pm 0.0050) \times 10^{-4}$ (PSI), are still two orders of magnitude less precise. Since this branching ratio is sensitive to the presence of pseudoscalar couplings, a wide range for new physics up to 1000 TeV can be searched for by improving the measurement by an order of magnitude.

In this talk we discuss the motivation and the status of the new experiments for the branching ratio measurement as well as related pion decays.

82

First measurements of strange baryons and anti-baryons with the ALICE experiment in pp collisions at LHC

Author: Renaud Vernet¹

¹ CC-IN2P3

The status of strange baryon and anti-baryon analysis in pp collisions at LHC is reported. It is based on ALICE pp data collected at $\sqrt{s}=900$ GeV and 7 TeV. The performance of Λ (anti- Λ), Ξ (anti- Ξ) and Ω (anti- Ω) reconstruction via their weak decay topology is described. Global yields and transverse momentum spectra extracted at central rapidity are presented.

83

Heavy quark measurements and the new Silicon Tracker (HFT) in STAR experiment at RHIC

Author: Spyridon Margetis¹

¹ Kent State University

Corresponding Author: smargeti@kent.edu

The HFT is a new central silicon upgrade for the STAR experiment at RHIC. It is replacing the decommissioned silicon drift detector with active pixel technology in order to achieve about an order of magnitude better track pointing (DCA) resolution. This will allow for a direct and full topological reconstruction of charmed meson decays (e.g. D^0 etc.) and a better determination of B - meson spectra. Key measurements are D^0 elliptic flow determination, especially in the lower transverse momenta (p_T) region and detailed identified heavy quark suppression studies at high p_T (R_{CP}/R_{AA}).

Summary:

Due to their large masses, heavy flavor (c and b) quarks are produced in the early stages of heavy ion collisions where the full initial energy is available for particle production. Radiative energy loss in dense partonic matter is thought to be inversely proportional to the quark mass. Early measurements of heavy flavor energy loss at RHIC using the decay-electron spectra of D and B mesons showed a suppression similar to that of light quarks. This puzzling result lead theorists to re-speculate the cause of this effect. Experimentally it is difficult to separate the charm and bottom contributions in the electron spectra. The two major experiments at RHIC, PHENIX and STAR both decided to upgrade their silicon vertex detectors in order to be able to improve their measuring capabilities. The STAR approach and goal is to obtain a precise measurement of heavy flavor production by identifying the decay of charmed mesons using direct topological reconstruction and thus disentangling the c and b contributions. In this talk we will present a brief report on the current status of measurements and future prospects.

85

First observation for heavy flavour production from the ALICE experiment at LHC

Author: Rossella Romita¹

¹ GSI, Darmstadt

The ALICE experiment is the LHC detector dedicated to the study of the Quark Gluon Plasma (QGP) in Pb-Pb collisions. Heavy flavours are ideal probes to explore both the formation and properties of the QGP, since they experience the full collision history and are expected to be copiously produced at LHC, much more than at any other collider. With ALICE we will measure heavy flavours down to small transverse momentum, combining hadronic and leptonic channels, both at central and forward rapidity. In particular, at central rapidity, it is possible to exclusively reconstruct a selection of hadronic decay channels for open charm mesons and baryons. In addition, the good identification of electrons allows to measure the production both of charmonium and open bottom.

An overview of the heavy flavour programme will be presented, focusing on the charm measurement in the central rapidity region. First results from p-p collisions at 7 TeV will be shown, including the clear signals of open and hidden charm hadrons reconstructed at ALICE. These data provide interesting insight into QCD processes in a new energy regime, are important as a baseline for the Pb-Pb program and demonstrate the potential for heavy flavour cross section measurements with the ALICE detector.

86

Open charm production in the $D^{*+} \rightarrow D0 \pi^+$ decay channel with ALICE

Author: Yifei Wang¹

¹ *Uni Heidelberg*

Corresponding Author: yifei@physi.uni-heidelberg.de

Y.Wang for the ALICE Collaboration

Heavy quarks(c, b), due to their large mass, are unique tools to study the degree of thermalization of the initially created matter in high energy nuclear collisions at LHC. The calculation of the total charm production remains a challenge in perturbative QCD. Presently, measurement of the charm production at the TeV scale are rather limited.

LHC has just started delivering p+p collisions at the world's highest center of mass energy of 7 TeV. The first results on open charm resonance production in the channel $D^{*+} \rightarrow D0 + \pi^+$ (BR:68%), where $D0 \rightarrow K \pi^+$ channel(BR: 4%), with the ALICE detector will be shown.

87

B Physics Results from the D0 Experiment

Author: Mark Williams¹

¹ *Lancaster University / Fermilab*

Corresponding Author: m.williams@lancaster.ac.uk

I will describe several recent results from the D0 experiment on the Tevatron proton-antiproton collider at Fermilab. The main subject will be searches for CP-violation, including a new di-muon charge asymmetry measurement. New results from the search for $B_s \rightarrow \mu\mu$ decays will also be presented.

88

Quarkonium and Heavy Flavour Physics with the ALICE Muon Spectrometer at the LHC

Author: Nicole BASTID¹

¹ *LPC Clermont-Ferrand*

Corresponding Author: nicole.bastid@clermont.in2p3.fr

The LHC heavy-ion physics programme aims at investigating the properties of strongly interacting matter at extreme energy density where the formation of the Quark Gluon Plasma (QGP) is expected. Amongst the most promising observables, quarkonia and heavy flavours are especially relevant since they provide unique access to the properties of the strongly interacting medium, independently of their leptonic decay. The successful achievement of the heavy-ion programme requires also the study of proton-proton collisions. Besides providing the necessary baseline for nucleus-nucleus collisions, proton-proton collisions are of great interest, also in their own right, since they allow to test perturbative QCD at unprecedented low Bjorken- x values.

ALICE (A Large Ion Collider Experiment) is the only detector dedicated to the study of nucleus-nucleus collisions at the LHC. Quarkonia and heavy flavours are measured in ALICE with (di)-electrons and (di)-muons and, through the hadronic channels. After a description of the ALICE muon spectrometer, its expected performances for quarkonium and heavy flavour measurements will be reviewed. Special attention will be given to the first experimental results obtained in p - p collisions collected at 7 TeV.

89

The E391a experiment at KEK

Author: GeiYoub Lim¹

¹ KEK

Corresponding Author: gyylim@post.kek.jp

The KEK-PS E391a experiment is the first experiment dedicated to the $KL \rightarrow \pi^0 \nu \bar{\nu}$ decay. Its primary goal is to establish an experimental method for precise measurement of the ultra rare process. There were three times of data taking during 2002-2003 at the 12-GeV proton synchrotron in KEK, Japan. The experimental group published their results recently and it will be the main contents of this talk.

90

Kaon Experiments at J-PARC

Author: GeiYoub Lim¹

¹ KEK

Corresponding Author: gyylim@post.kek.jp

The newly constructed high-intensity proton synchrotron, J-PARC (Japan Proton Accelerator Research Complex, <http://j-parc.jp/>), has completed the first stage of construction and the accelerator components are under commissioning. Many experiments using slowly extracted proton beam are proposed and preparing. In this talk, two experiments, 'KOTO' to search for $KL \rightarrow \pi^0 \nu \bar{\nu}$ decay and 'TREK' for T-Violation using $K^+ \rightarrow \pi^0 \mu^+ \nu$ decay, will be introduced and their status will be reported.

91

Charm and Beauty production at RHIC

Author: Sonia Kabana¹

¹ SUBATECH

Corresponding Author: kabana@mail.cern.ch

We present results on charm and beauty production at RHIC, in $p+p$, $d+Au$ and $A+A$ collisions at $\sqrt{s_{NN}}=200$ GeV, and compare them to model calculations. We focus on two particular issues, jet quenching and quarkonia. Anomalous energy loss (jet quenching) of quarks passing through the dense and hot matter build in heavy ion

collisions is one of the outstanding discoveries made at RHIC, allowing for an estimate of the initial density. Furthermore, color screening of hidden charm and beauty states is a key signature of the QCD phase transition, allowing an estimate of the initial temperature. We present results on the flavour (u,d,s,c,b) dependence of jet quenching. Heavy flavour production in A+A as compared to p+p collisions will be discussed for open and hidden charm.

92

Unitarity Triangle and New Physics

Author: Paride Paradisi¹

¹ *TUM*

The origin of flavour and the understanding of the hierarchies in quark and lepton masses and mixings are among the most important open issues in particle physics. In this talk, we discuss a range of topics: from theories that can (partially) explain the origin of flavor to more specific issues related to the precise determination of elements of the CKM matrix including the interpretation of interesting recent experimental results. The global status of the field, as well as its future prospects, are also discussed.

93

Status and prospects of the SuperB project

Author: Matteo Rama¹

¹ *LNF*

SuperB is a next generation asymmetric e+e- flavor factory with a baseline luminosity of $10^{36} \text{ cm}^{-2} \text{ s}^{-1}$, almost two orders of magnitude the peak luminosity of the existing B-factories. The physics motivation and the status of the project are described.

Opening Session / 94

Heavy Flavors as a Gate to New Physics

Author: Antonio Masiero¹

¹ *University of Padova and INFN*

Corresponding Author: antonio.masiero@pd.infn.it

Flavor Physics at LHC - I (14:00-16:00) / 95

Status of ATLAS and first results

Author: Dan Tovey¹

¹ *University of Sheffield*

Corresponding Author: d.r.tovey@sheffield.ac.uk

Flavor Physics at LHC - I (14:00-16:00) / 96

Status of CMS and first results

Author: Cristina Biino¹

¹ *INFN Torino*

Corresponding Author: cristina.biino@cern.ch

Flavor Physics at LHC - I (14:00-16:00) / 97

LHCb status and minimum bias physics

Author: Sebastian Bachmann¹

¹ *University of Heidelberg*

Corresponding Author: bachmann@physi.uni-heidelberg.de

Flavor Physics at LHC - I (14:00-16:00) / 98

Status of the ALICE experiment and first results on heavy flavor production

Author: Rosa Romita¹

¹ *GSI Darmstadt*

Corresponding Author: r.romita@gsi.de

99

Coffee Break

Flavor Physics at LHC - II (16:30-17:30) / 100

Muon commissioning and Exclusive B production at CMS with the first LHC data

Author: Silvia Taroni¹

¹ *INFN Milano-Bicocca*

Flavor Physics at LHC - II (16:30-17:30) / 101

Studies of open charm and charmonium production at LHCb

Author: Matthew Charles¹

¹ *Oxford University*

Flavor Physics at LHC - II (16:30-17:30) / 102

Charmonium and beauty ATLAS physics programme

Author: Maria Smizanska¹

¹ *Lancaster University*

Corresponding Author: maria.smizanska@cern.ch

Flavor Physics at LHC - III (17:30-18:30) / 103

Study of D-mesons in the hadronic channel with the ALICE detector

Author: Renu Bala¹

¹ *INFN Torino*

Flavor Physics at LHC - III (17:30-18:30) / 104

First ATLAS results on charm production

Author: Eleni Mountricha¹

¹ *NTUA, Athens*

Corresponding Author: eleni.mountricha@cern.ch

Flavor Physics at LHC - III (17:30-18:30) / 105

Low-mass di-muons at CMS

Author: Theodore Kypreos¹

¹ *University of Florida*

Corresponding Author: kypt@phys.ufl.edu

Concluding Session - I (9:00-10:45) / 106

Concluding Remarks

Concluding Session - I (9:00-10:45) / 107

Higgs search prospects at LHC

Author: Rebeca Gonzalez Suarez¹

¹ *IFCA, Santander*

Corresponding Author: rebeca@cern.ch

Concluding Session - I (9:00-10:45) / 108

Search for Susy and new physics at LHC

Author: David Antony Milstead¹

¹ *Stockholm University*

Corresponding Author: milstead@physto.se

Concluding Session - I (9:00-10:45) / 109

Beauty and charm to study new physics at future linear colliders

Author: Marco Battaglia¹

¹ *UCSC and CERN*

Corresponding Author: marco.battaglia@cern.ch

Concluding Session - II (11:15-12:30) / 110

BEACH2010 Summary Talk

Author: Tatsuya Nakada¹

¹ *Ecole Polytechnique Federale de Lausanne (EPFL)*

Concluding Session - II (11:15-12:30) / 111

Conference Closing

General Public Seminar / 112

Il Large Hadron Collider del CERN: la piu' grande macchina alle frontiere dell'ignoto

Author: Fernando Ferroni¹

¹ *University La Sapienza and INFN, Roma*

Corresponding Author: fernando.ferroni@roma1.infn.it

Flavor Physics at LHC - IV (9:00-10:20) / 113

Expectations for first measurements of t-tbar pair production using early CMS data

Author: Anne-Catherine Le Bihan¹

¹ *IPHC CNRS/IN2P3, Strasbourg*

Corresponding Author: anne-catherine.le.bihan@cern.ch

114

ATLAS top physics

Author: Kerim Suruliz¹

¹ *ICTP, Trieste*

Corresponding Author: kerim.suruliz@cern.ch

115

ATLAS top physics

Flavor Physics at LHC - IV (9:00-10:20) / 116

ATLAS top physics

Author: Kerim Suruliz¹

¹ *ICTP, Trieste*

Corresponding Author: kerim.suruliz@cern.ch

Flavor Physics at LHC - IV (9:00-10:20) / 117

Quarkonium and Heavy Flavour Physics with the ALICE Muon Spectrometer at the LHC

Author: Nicole BASTID¹

¹ *LPC Clermont-Ferrand*

Corresponding Author: nicole.bastid@clermont.in2p3.fr

Flavor Physics at LHC - IV (9:00-10:20) / 118

Open Charm production in the $D^* \rightarrow D0 \pi^+$ decay channel with ALICE

Author: Yifei Wang¹

¹ *Uni Heidelberg*

Corresponding Author: yifei@physi.uni-heidelberg.de

Flavor Physics at LHC - V (10:50-11:50) / 119

Search for New Physics in Heavy Quark Decays at LHCb

Author: Jeroen van Tilburg¹

¹ *Universitaet Zuerich*

Corresponding Author: jeroen.van.tilburg@cern.ch

Flavor Physics at LHC - V (10:50-11:50) / 120

First measurements of strange baryons and anti-baryons with the ALICE experiment in pp collisions at LHC

Author: Renaud Vernet¹

¹ *CC-IN2P3*

Corresponding Author: renaud.vernet@cc.in2p3.fr

Flavor Physics at LHC - V (10:50-11:50) / 121

R_{AA} of charm quarks at RHIC and LHC

Author: Begum Umme Jamil¹

¹ *Variable Energy Cyclotron Centre, Kolkata*

Corresponding Author: ummejamil@gmail.com

CKM and CP violation - I (11:50-12:30) / 122

Recent CKM Element Results from BaBar and Belle

Author: Nicola Gagliardi¹

¹ *University of Padova*

CKM and CP violation - I (11:50-12:30) / 123

Recent results on CP violation and CKM UT angles from Belle and BaBar

Author: Gagan Mohanty¹

¹ *TIFR Mumbai*

Corresponding Authors: kfjack@hep1.phys.ntu.edu.tw, gmohanty@tifr.res.in

CKM and CP violation - II (14:00-15:00) / 124

Unitarity Triangle and New Physics

Author: Paride Paradisi¹

¹ *TUM*

Corresponding Author: paride.paradisi@ph.tum.de

CKM and CP violation - II (14:00-15:00) / 125

New measurement of the Bs mixing phase at the Tevatron

Author: Franco Bedeschi¹

¹ *INFN Pisa*

126

Production of Heavy Flavors in ep Collisions at HERA

Author: Wojciech Perlanski¹

¹ *Lodz University*

Corresponding Author: wojciech.perlanski@desy.de

127

Production of Heavy Flavors in ep Collisions at HERA

128

Production of Heavy Flavors in ep Collisions at HERA

Hadron Production in Lepton Interactions - I (15:00-16:00) / 129

Production of Heavy Flavors in ep Collisions at HERA

Author: Wojciech Perlanski¹

¹ *Lodz University*

Corresponding Author: wojciech.perlanski@desy.de

130

The physics program of CLAS12

Author: Silvia Niccolai¹

¹ *IPN Orsay*

Corresponding Author: silvia@jlab.org

Hadron Production in Lepton Interactions - I (15:00-16:00) / 131

The physics program of CLAS12

Author: Silvia Niccolai¹

¹ *IPN Orsay*

Corresponding Author: silvia@jlab.org

Hadron Production in Lepton Interactions - II (16:30-18:20) / 132

Particle Production and Fragmentation at HERA

Author: Grazyna Nowak¹

¹ *INP PAS, Krakow*

Corresponding Author: nowak@mail.desy.de

Hadron Production in Lepton Interactions - II (16:30-18:20) / 133

Production and Polarization of Lambda and Lambda-bar Hyperons in Deep Inelastic Scattering at COMPASS

Author: Vadim Alexakhin¹

¹ *JINR Dubna*

Corresponding Author: vadim.alexakhin@cern.ch

Hadron Production in Lepton Interactions - II (16:30-18:20) / 134

Lambda Polarization at HERMES

Author: Yura Naryshkin¹

¹ *PNPI*

Corresponding Author: naryshk@mail.desy.de

Hadron Production in Lepton Interactions - II (16:30-18:20) / 135

Hyperon Resonance Photoproduction at CLAS

Author: Kenneth Hicks¹

¹ *Ohio University*

Corresponding Author: hicks@ohio.edu

Heavy Flavor Decay and Properties - I (9:00-10:30) / 136

Search for Non-Standard Model Physics in Rare Decays at the Tevatron

Author: Guido Volpi¹

¹ *INFN Pisa*

Corresponding Author: guido.volpi@pi.infn.it

Heavy Flavor Decay and Properties - I (9:00-10:30) / 137

Recent results on quarkonia at Belle

Author: Jolanta Brodzicka¹

¹ *INP Krakow*

Corresponding Author: jolanta.brodzicka@ifj.edu.pl

Heavy Flavor Decay and Properties - I (9:00-10:30) / 138

Searches for New Physics at BaBar

Author: Concetta Cartaro¹

¹ *SLAC*

Heavy Flavor Decay and Properties - I (9:00-10:30) / 139

Advances in Open Charm Physics at CLEO-c

Author: Paras Naik¹

¹ *University of Bristol*

Corresponding Author: paras.naik@cern.ch

Heavy Flavor Decay and Properties - II (11:00-12:25) / 140

Evidence for an Anomalous Like-sign Dimuon Asymmetry at the D0 Experiment

Author: Mark Williams¹

¹ *Lancaster University / Fermilab*

Corresponding Author: m.williams@lancaster.ac.uk

Heavy Flavor Decay and Properties - II (11:00-12:25) / 141

Heavy Flavor Properties at CDF

Author: Sandro de Cecco¹

¹ *LPNHE, Université Paris VII, CNRS-IN2P3*

Corresponding Author: sandro.dececco@lpnhe.in2p3.fr

Heavy Flavor Decay and Properties - II (11:00-12:25) / 142

Hadronic B Decays at Belle

Author: Kai-Feng Chen¹

¹ *National Taiwan University*

Corresponding Author: kfjack@hep1.phys.ntu.edu.tw

Heavy Flavor Decay and Properties - II (11:00-12:25) / 143

Lepton Energy Moments in Semileptonic Charm Decays

Author: Jernej Kamenik¹

¹ *Jozef Stefan Institute*

Corresponding Author: jernej.kamenik@ijs.si

Kaon Physics: Theory and Experiments - I (9:00-10:40) / 144

Rare K decays and epsilon_K: Theory Prediction

Author: Joachim Brod¹

¹ *ECU, TU Munich*

Corresponding Author: joachim.brod@ph.tum.de

Kaon Physics: Theory and Experiments - I (9:00-10:40) / 145

Lepton Universality tests with leptonic kaon decays

Author: Evgueni Goudzovski¹

¹ *JINR Dubna*

Corresponding Author: goudzovs@mail.cern.ch

Kaon Physics: Theory and Experiments - I (9:00-10:40) / 146

Results from the E391a experiment at KEK

Author: GeiYoub Lim¹

¹ *KEK*

Corresponding Author: gylim@post.kek.jp

Kaon Physics: Theory and Experiments - I (9:00-10:40) / 147

CP violation tests with rare kaon decays in NA48

Author: Evelina M. Marinova¹

¹ *INFN Perugia*

Corresponding Author: evelina.marinova@pg.infn.it

Kaon Physics: Theory and Experiments - II (11:10-12:20) / 148

Results on radiative kaon decays and Ks and Kl lifetimes at KLOE

Author: Mario Antonelli¹

¹ *INFN, LNF*

Corresponding Author: mario.antonelli@lnf.infn.it

Kaon Physics: Theory and Experiments - II (11:10-12:20) / 149

Precision measurements of kaon radiative decays

Author: Cristina Biino¹

¹ *INFN Torino*

Corresponding Author: cristina.biino@cern.ch

Kaon Physics: Theory and Experiments - II (11:10-12:20) / 150

A new measurement of charged kaons mass

Author: Nickolas Solomey¹

¹ *Wichita State University*

Corresponding Author: nsolomey@gmail.com

Kaon Physics: Theory and Experiments - III (14:00-14:40) / 151

Kaon-nucleon/nuclei interaction studies by kaonic atoms measurements: the SIDDHARTA Experimenta at DAFNE

Author: Diana Laura Sirghi¹

¹ *LNF*

Corresponding Author: diana.laura.sirghi@lnf.infn.it

Kaon Physics: Theory and Experiments - III (14:00-14:40) / 152

Precision measurements of pion-pion scattering length in Ke4 decays at NA48

Author: Rainer Wanke¹

¹ *Mainz University*

Corresponding Author: rainer.wanke@uni-mainz.de

New Projects - I (14:40-16:10) / 153

Status and Prospects of SuperKEKB and Belle II

Author: Jolanta Brodzicka¹

¹ *INP Krakow*

Corresponding Author: jolanta.brodzicka@ifj.edu.pl

New Projects - I (14:40-16:10) / 154

Status and Prospects of the SuperB Factory

Author: Matteo Rama¹

¹ *LNF*

New Projects - I (14:40-16:10) / 155

The Fermilab Project-X Research Program

Author: Robert Tschirhart¹

¹ *Fermilab*

New Projects - I (14:40-16:10) / 156

The KLOE2 Experiment at DAFNE upgraded in luminosity

Author: Francesco Gonnella¹

¹ *University Roma Tor Vergata and INFN*

New Projects - II (16:30-18:20) / 157

Kaon Experiments at J-Parc

Author: GeiYoub Lim¹

¹ *KEK*

Corresponding Author: gylim@post.kek.jp

New Projects - II (16:30-18:20) / 158

The NA62 Experiment at CERN

Author: Giuseppe Ruggiero¹

¹ *Scuola Normale Superiore, Pisa*

Corresponding Author: giuseppe.ruggiero@cern.ch

New Projects - II (16:30-18:20) / 159

Precision Measurement of $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ at Fermilab

Author: Robert Tschirhart¹

¹ *Fermilab*

Corresponding Author: tsch@fnal.gov

New Projects - II (16:30-18:20) / 160

Kaon-nuclei interaction studies at low energies: the AMADEUS experiment

Author: Kristian Piscicchia¹

¹ *INFN, LNF*

Corresponding Author: kristian.piscicchia@lnf.infn.it

New Projects - II (16:30-18:20) / 161

Heavy quark measurements and the new Silicon Tracker (HFT) in STAR experiment at RHIC

Author: Spyridon Margetis¹

¹ *Kent State University*

Corresponding Author: smargeti@kent.edu

Lepton Flavor - I (9:00-10:50) / 162

Lepton Flavor for Hadron Flavor Physicists

Author: Steve King¹

¹ *University of Southampton*

Corresponding Author: king@soton.ac.uk

Lepton Flavor - I (9:00-10:50) / 163

Lepton Flavor Violation search with mu \rightarrow e gamma decay: the MEG experiment

Author: Hiroaki Natori¹

¹ *Univ. of Tokyo*

Lepton Flavor - I (9:00-10:50) / 164

A new high sensitivity muon-electron conversion search at Fermilab

Authors: Rob Kutschke¹; Robert Bernstein Bernstein¹; Robert Tschirhart¹

¹ *Fermilab*

Corresponding Author: tsch@fnal.gov

Lepton Flavor - I (9:00-10:50) / 165

Precision Measurements with Pions: a review

Author: Toshio Numao¹

¹ *TRIUMF*

Corresponding Author: toshio@triumf.ca

Lepton Flavor - II (11:20-12:50) / 166

Review on Neutrino Oscillations

Author: Maruyama Takasumi¹

¹ *KEK*

Corresponding Author: takasumi.maruyama@kek.jp

Lepton Flavor - II (11:20-12:50) / 167

Neutrinoless Double Beta Decay

Author: Carlo Bucci¹

¹ *INFN, LNGS*

Corresponding Author: carlo.bucci@lngs.infn.it

Lepton Flavor - II (11:20-12:50) / 168

Pion production in the HARP-PS214 Experiment at CERN-PS

Author: Mauro Mezzetto¹

¹ *INFN Padova*

Corresponding Author: mauro.mezzetto@pd.infn.it

Quark Flavor Spectroscopy - I (14:00-15:30) / 169

Charmonium and Bottomonium Spectroscopy and Exotics

Author: Antonio Davide Polosa¹

¹ *INFN Roma1*

Corresponding Author: antonio.polosa@roma1.infn.it

Quark Flavor Spectroscopy - I (14:00-15:30) / 170

Charmonium Results from BESIII

Author: Jingzhi Zhang¹

¹ *IHEP, Beijing*

Corresponding Author: jingzhi@ihep.ac.cn

Quark Flavor Spectroscopy - I (14:00-15:30) / 171

Quarkonium Studies at BaBar

Author: Simone Stracka¹

¹ *INFN Milano*

Quark Flavor Spectroscopy - I (14:00-15:30) / 172

Recent Results on Light Hadron Spectroscopy at BES

Author: Xiaobin Ji¹

¹ *IHEP, Beijing*

Corresponding Author: jixb@ihep.ac.cn

Quark Flavor Spectroscopy - II (15:30-16:40) / 173

Contribution of the MVD to the Charm Spectroscopy at PANDA

Author: Thomas Würschig¹

¹ *HISKP, Uni Bonn*

Corresponding Author: t.wuerschig@hiskp.uni-bonn.de

Quark Flavor Spectroscopy - II (15:30-16:40) / 174

Charm and Beauty production at RHIC

Author: Sonia Kabana¹

¹ *SUBATECH*

Corresponding Author: kabana@mail.cern.ch

Quark Flavor Spectroscopy - II (15:30-16:40) / 175

The perfect opaque fluid at RHIC

Author: Giorgio Torrieri¹

¹ *JW Goethe Universitat, Frankfurt*

Corresponding Author: torrieri@th.physik.uni-frankfurt.de

Hadron Production in Lepton Interactions - II (16:30-18:20) / 176

Target mass corrections for polarized structure functions

Author: Sara Taheri Monfared¹

¹ *Semnan University*

Corresponding Author: sara_taherimonfared@yahoo.com