

14th International Conference on Strangeness in Quark Matter

(SQM 2013)

Journal of Physics: Conference Series Volume 509

**Birmingham, United Kingdom
22 – 27 July 2013**

Editors:

**D. Evans
S. Hands
R. Lietava**

**R. Romita
O. Baillie**

**ISBN: 978-1-63439-289-1
ISSN: 1742-6588**

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by the Institute of Physics
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PLENARY PAPERS

A SNAPSHOT OF OUR EXPERIMENTAL KNOWLEDGE CIRCA WINTER 2012-13	1
<i>H Caines</i>	
STRANGENESS IN QUARK MATTER: OPENING TALK	7
<i>J Steinheimer, T Lang, H Van Hees, A S Botvina, K K Gudima, I N Mishustin, H Stöcker, M Bleicher</i>	
OVERVIEW OF RESULTS FROM ALICE	13
<i>M Ploskon</i>	
RECENT RESULTS ON STRANGENESS PRODUCTION AT STAR	20
<i>X Zhu</i>	
IDENTIFIED CHARGE HADRON SPECTRA AND RATIOS IN AU+AU AND D+AU COLLISIONS AT $\sqrt{s_{NN}} = 200$ GEV	25
<i>R Belmont</i>	
HEAVY FLAVOURS AND QUARKONIA	30
<i>R G De Cassagnac</i>	
OPEN AND HIDDEN HEAVY FLAVOR PRODUCTION IN PP, PA AND AA COLLISIONS	36
<i>R Vogt</i>	
ALICE RESULTS ON QUARKONIUM PRODUCTION IN PP, P-PB AND PB-PB COLLISIONS	42
<i>G E Bruno</i>	
HEAVY FLAVOR PRODUCTION IN STAR	48
<i>D Kikola</i>	
QUARKONIA AND HEAVY FLAVORS LATEST PHENIX RESULTS	53
<i>D Jouan</i>	
OPEN HEAVY-FLAVOUR RESULTS FROM ALICE	58
<i>D Stocco</i>	
OPEN AND CLOSED HEAVY-FLAVOUR SUPPRESSION IN HEAVY-ION COLLISIONS WITH CMS	63
<i>M Jo</i>	
STRANGE PARTICLE PRODUCTION IN MONTE CARLO GENERATORS IN PP AND PPB COLLISIONS AT THE LHC	68
<i>K Werner</i>	
TRAVELING THROUGH THE UNIVERSE: BACK IN TIME TO THE QUARK-GLUON PLASMA ERA	74
<i>J Rafelski, J Birrell</i>	
QUARK-GLUON PLASMA PHENOMENOLOGY FROM THE LATTICE	84
<i>C Allton, G Aarts, A Amato, W Evans, P Giudice, S Hands, A Kelly, S Kim, M-P Lombardo, S Ryan, J-I Skullerud, T Harris</i>	
COARSE GRAINING IN HYDRODYNAMICS AND EFFECTS OF FLUCTUATIONS	89
<i>T Kodama, T Koide</i>	
HYDRODYNAMIC MODELS OF PARTICLE PRODUCTION - P-PB COLLISIONS	94
<i>P Bożek, W Broniowski, G Torrieri</i>	
INTERPRETATION OF STRANGE HADRON PRODUCTION AT LHC	99
<i>M Petrán, J Letessier, V Petrácek, J Rafelski</i>	
CONFRONTING LHC DATA WITH THE STATISTICAL HADRONIZATION MODEL	105
<i>J Stachel, A Andronic, P Braun-Munzinger, K Redlich</i>	
LATEST LHCb RESULTS FROM THE PA DATA	110
<i>L Zhong</i>	
P-PB RESULTS FROM ALICE WITH AN EMPHASIS ON CENTRALITY DETERMINATION	115
<i>A Morsch</i>	
JET QUENCHING AND HEAVY QUARKS	120
<i>T Renk</i>	
JET RESULTS FROM PBPB AND PPB COLLISIONS WITH CMS	125
<i>G S F Stephanos</i>	
RESULTS ON ANGULAR CORRELATIONS WITH ALICE	129
<i>P Christakoglou</i>	

MEASUREMENT OF AZIMUTHAL ANISOTROPY OF HADRONS IN AU+AU COLLISIONS FROM THE BEAM ENERGY SCAN PROGRAM BY THE PHENIX EXPERIMENT AT RHIC.....	135
<i>Y Ikeda</i>	
STATUS AND PHYSICS OPPORTUNITIES OF THE STAR HEAVY FLAVOR TRACKER AND THE MUON TELESCOPE DETECTOR UPGRADES	140
<i>Q Hao</i>	
QUARKS, FLOW AND TEMPERATURE IN SPECTRA.....	145
<i>T S Biró, Z Szendi, Z Schram</i>	
SQM2013: EXPERIMENTAL SUMMARY	153
<i>A Dainese</i>	

FLOW

ANISOTROPIC FLOW OF IDENTIFIED PARTICLES IN PB-PB COLLISIONS AT $\sqrt{\text{SNN}} = 2.76$ TEV WITH THE ALICE DETECTOR.....	162
<i>Y Zhou</i>	
RECENT ATLAS RESULTS ON FLOW MEASUREMENTS IN LEAD-LEAD AND PROTON- LEAD COLLISIONS	166
<i>A Trzupak</i>	
EFFECTS OF JETS IN THE FLOW OBSERVABLES	170
<i>J Takahashi, R D De Souza, D D Chinellato</i>	
LANDAU HYDRODYNAMICS FOR NON-CENTRAL HEAVY-ION COLLISIONS AND LONGITUDINAL SCALING OF ELLIPTIC FLOW	174
<i>K Tamasiunas</i>	
CHARGE ASYMMETRY DEPENDENCY OF P/K ANISOTROPIC FLOW IN U+U $\sqrt{\text{SNN}} = 193$ GEV AND AU+AU $\sqrt{\text{SNN}} = \text{GeV}$ COLLISIONS AT STAR.....	178
<i>Q-Y Shou</i>	

LOW ENERGY / HEAVY FLAVOUR

INFLUENCE OF THE IN-MEDIUM KAON POTENTIAL ON KAON PRODUCTION IN HEAVY ION COLLISIONS.....	182
<i>P Srisawad, A Harfield, S Sombun, T Katukum, O Ketsungnoen, Y M Zheng, A Limphirat, Y Yan</i>	
PHENOMENOLOGY OF QUARKYONIC MATTER IN HEAVY-ION COLLISIONS	186
<i>G Torrieri, S Vogel, S Lottini</i>	
STRONGLY INTERACTING PARTON-HADRON MATTER IN- AND OUT-OFF EQUILIBRIUM	190
<i>E L Bratkovskaya, O Linnyk, W Cassing, V P Konchakovski, V Ozvenchuk</i>	
THE PRODUCTION OF K^0'S IN P+P REACTIONS.....	194
<i>J-C Berger-Chen, L Fabbietti</i>	
EFFECT OF QUARK GLUON PLASMA ON CHARM QUARK PRODUCED IN RELATIVISTIC HEAVY ION COLLISION.....	198
<i>M Younus, D K Srivastava, S A Bass</i>	
GLUON RADIATION BY HEAVY QUARKS.....	202
<i>J Aichelin, P Gossiaux, T Gousset</i>	

STRANGENESS 1

SYSTEM-SIZE DEPENDENCE OF CHARGED KAON AND PION PRODUCTION IN NUCLEUS- NUCLEUS COLLISIONS AT BEAM ENERGIES OF 40A GEV AND 158A GEV	206
<i>H Ströbele</i>	
PRODUCTION OF $\pi/K/P$ IN PP AND PB-PB COLLISIONS MEASURED WITH ALICE.....	210
<i>M Chojnacki</i>	
KAON FEMTOSCOPY IN $\sqrt{\text{SNN}} = 200$ GEV CENTRAL AU+AU COLLISIONS AT STAR.....	214
<i>R Vértesi</i>	
STUDY OF H-H AND V^0-H ANGULAR CORRELATIONS IN PB-PB COLLISIONS AT $\sqrt{\text{SNN}} =$ 2.76 TEV.....	218
<i>M Bombara</i>	

MULTIPLICITY FLUCTUATIONS OF IDENTIFIED HADRONS IN P+P INTERACTIONS AT SPS ENERGIES.....	222
<i>M Mackowiak-Pawlowska, A Wilczek</i>	

HEAVY FLAVOUR 1

NUCLEAR MODIFICATION FACTOR AND ELLIPTIC FLOW OF MUONS FROM HEAVY-FLAVOUR DECAYS IN PB-PB COLLISIONS AT $\sqrt{s_{NN}} = 2.76$ TEV	226
<i>X Zhang</i>	
HEAVY QUARK ENERGY LOSS AND BULK PHYSICS	230
<i>W A Horowitz</i>	
HEAVY-FLAVOR AZIMUTHAL CORRELATIONS OF D MESONS	234
<i>M Nahrgang, J Aichelin, P B Gossiaux, K Werner</i>	
HEAVY FLAVOR SUPPRESSION: BOLTZMANN VS LANGEVIN	238
<i>S K Das, F Scardina, S Plumari, V Greco</i>	
SHEAR VISCOSITY OF A MULTI-COMPONENT HADRONIC SYSTEM	242
<i>A Wiranata, V Koch, M Prakash, X N Wang</i>	

PHASE TRANSITION

FLAVOR-SPECIFIC BEHAVIOR OF CONSERVED CHARGE FLUCTUATIONS AT THE QCD CONFINEMENT TRANSITION.....	246
<i>M Bluhm, P Alba, W M Alberico, R Bellwied, C Ratti</i>	
QUARK-HADRON PHASE TRANSITION IN A THREE FLAVOR PNJL MODEL.....	250
<i>K Yamazaki, T Matsui</i>	
TRANSPORT COEFFICIENTS FROM THE NAMBU-JONA-LASINIO MODEL FOR SU(3)F	254
<i>R Marty, E Bratkovskaya, W Cassing, J Aichelin, H Berrehrah</i>	
DIFFUSION OF NON-GAUSSIANITY IN HEAVY ION COLLISIONS.....	258
<i>M Kitazawa, M Asakawa, H Ono</i>	

POLARISATION OBSERVABLES AND EA

TURBULENCE, VORTICITY AND LAMBDA POLARIZATION.....	262
<i>L P Csernai, F Becattini, D J Wang</i>	
RELATIVISTIC DISTRIBUTION FUNCTION FOR PARTICLES WITH SPIN AT LOCAL THERMODYNAMICAL EQUILIBRIUM.....	266
<i>F Becattini, V Chandra, L D Zanna, E Grossi</i>	
HYPERON POLARIZATION IN HEAVY ION COLLISIONS.....	270
<i>C C Barros Jr</i>	
ERHIC: A PRECISION TOOL FOR STUDYING NUCLEAR STRUCTURE	274
<i>T Burton</i>	

POSTERS

AZIMUTHAL CORRELATION OF CHARM QUARK PAIR PRODUCED IN HEAVY ION COLLISION	278
<i>M Younus, D K Srivastava</i>	
RELATIVISTIC HYDRODYNAMICS ON GRAPHICS PROCESSING UNITS	281
<i>J Sikorski, S Cygert, J Porter-Sobieraj, M Slodkowski, P Krzyzanowski, N Ksiazek, P Duda</i>	
MEASUREMENTS OF THE CORRELATION BETWEEN ELECTRONS FROM HEAVY-FLAVOUR HADRON DECAYS AND LIGHT HADRONS WITH ALICE AT THE LHC	284
<i>E P D O Filho</i>	
STUDY OF B-JET TAGGING PERFORMANCE IN ALICE.....	287
<i>L Feldkamp</i>	
ELLIPTIC FLOW OF HEAVY-FLAVOUR DECAY ELECTRONS IN PB-PB COLLISIONS AT $\sqrt{s_{NN}} = 2.76$ TEV WITH ALICE	290
<i>A. Dubla</i>	
CHARM DECAY AS A SOURCE OF MULTISTRANGE HADRONS.....	294
<i>M Petran, J Letessier, V Petracek, J Rafelski</i>	

COLOR RECONNECTION AND FLOW-LIKE PATTERNS IN PP COLLISIONS	298
<i>I A Maldonado-Cervantes, E Cuautle, G Paic, A O Velasquez, P Christiansen</i>	

BEAM ENERGY SCAN

THE QCD PHASE TRANSITION IN A FULLY DYNAMICAL MODEL OF HEAVY-ION COLLISIONS	301
<i>C Herold, M Nahrgang, I Mishustin, M Bleicher</i>	
STUDY OF FREEZE-OUT DYNAMICS IN STAR AT RHIC BEAM ENERGY SCAN PROGRAM	305
<i>S Das</i>	
BEAM ENERGY SCAN USING A VISCOUS HYDRO+CASCADE MODEL.....	309
<i>I A Karpenko, M Bleicher, P Huovinen, H Petersen</i>	
THE ELLIPTIC FLOW AND THE SHEAR VISCOSITY OF THE QGP WITHIN A KINETIC APPROACH	313
<i>S Plumari, A Puglisi, F Scardina, V Greco, L P Csernai</i>	
HIGHER MOMENTS OF NET KAON MULTIPLICITY DISTRIBUTIONS AT RHIC ENERGIES FOR THE SEARCH OF QCD CRITICAL POINT AT STAR	317
<i>A Sarkar</i>	
PROBING THE QCD PHASE DIAGRAM WITH MEASUREMENTS OF ϕ-MESON PRODUCTION AND ELLIPTIC FLOW IN HEAVY-ION COLLISIONS AT STAR	321
<i>M Nasim</i>	

HARD PROBES

ELECTROWEAK BOSON PRODUCTION IN HEAVY-ION COLLISIONS WITH CMS	325
<i>M Gardner</i>	
INVESTIGATION OF MACH CONES AND THE CORRESPONDING TWO-PARTICLE CORRELATIONS IN A MICROSCOPIC TRANSPORT MODEL	329
<i>I Bouras, B Betz, Z Xu, C Greiner</i>	
ATLAS HIGH-PT MEASUREMENTS IN LEAD-LEAD COLLISIONS.....	333
<i>Z Citron</i>	
TOMOGRAPHY OF QGP WITH JET ASYMMETRIES	337
<i>G-L Ma</i>	
APPEARANCE OF A QUARK MATTER PHASE IN HYBRID STARS	341
<i>T Endo</i>	

HEAVY FLAVOUR 2

TOWARDS THE DYNAMICAL STUDY OF HEAVY-FLAVOR QUARKS IN THE QUARK-GLUON-PLASMA	345
<i>H Berrehrah, E Bratkovskaya, W Cassing, P B Gossiaux, J Aichelin</i>	
HEAVY VS. LIGHT FLAVOR ENERGY LOSS WITHIN A PARTONIC TRANSPORT MODEL	349
<i>J Uphoff, O Fochler, Z Xu, C Greiner</i>	
OPEN CHARM MEASUREMENTS IN P + P COLLISIONS AT STAR	353
<i>D Tlusty</i>	
MEASUREMENT OF ELECTRONS FROM HEAVY-FLAVOUR DECAYS IN PB-PB COLLISIONS AT $\sqrt{s_{NN}} = 2.76$ TEV WITH ALICE	357
<i>D Thomas</i>	
D-MESON NUCLEAR MODIFICATION FACTOR AND V_2 IN PB-PB COLLISIONS AT THE LHC	362
<i>E Bruna</i>	
OPEN-CHARM PRODUCTION AS A FUNCTION OF CHARGED PARTICLE MULTIPLICITY IN PP COLLISIONS AT $\sqrt{s} = 7$ TEV WITH ALICE	366
<i>R Bala</i>	

FUTURE

PROSPECTS FOR HEAVY FLAVOUR MEASUREMENTS WITH THE ALICE INNER TRACKER UPGRADE.....	370
<i>C Terrevoli</i>	
NA61/SHINE EXPERIMENT UPGRADE WITH VERTEX DETECTOR FOR OPEN CHARM MEASUREMENTS.....	374
<i>Y Ali, P Staszek</i>	
STATUS AND CHALLENGES OF THE COMPRESSED BARYONIC MATTER (CBM) EXPERIMENT AT FAIR.....	378
<i>H R Schmidt</i>	

RESONANCES

BEAM ENERGY DEPENDENCE OF STRANGE HADRON PRODUCTION FROM STAR AT RHIC.....	382
<i>F Zhao</i>	
RESONANCE PRODUCTION IN $\sqrt{s}=7$ TEV PP COLLISIONS WITH ALICE.....	386
<i>G R Lee</i>	
HADRONIC RESONANCES IN HEAVY-ION COLLISIONS AT ALICE	390
<i>A G Knospe</i>	
LOW MASS VECTOR MESON PRODUCTION IN PP AND PB-PB COLLISIONS MEASURED WITH ALICE AT THE LHC.....	394
<i>A De Falco</i>	

STRANGENESS 2

ELLIPTIC FLOW OF Λ , Ξ AND Ω IN 2.76 A TEV PB+PB COLLISIONS	398
<i>H Song, F Meng, X Xin, Y-X Liu</i>	
MULTI-STRANGE BARYON PRODUCTION IN PB-PB AND PP COLLISIONS AT $\sqrt{s_{NN}}=2.76$ TEV WITH THE ALICE EXPERIMENT AT THE LHC.....	402
<i>D Colella</i>	
K^0_s & Λ PRODUCTION IN ALICE	406
<i>L Hanratty</i>	
STRANGE BARYON TO MESON RATIO.....	410
<i>E Cuaute, A Ayala</i>	

QUARKONIA AND HEAVY FLAVOUR

QUARKONIA PRODUCTION AND SUPPRESSION IN HEAVY ION COLLISIONS IN STAR.....	414
<i>D Kikola</i>	
JET SUPPRESSION AT LHC: THEORY VS. EXPERIMENT	418
<i>M Djordjevic</i>	
SEMI-CLASSICAL APPROACH TO J/ψ SUPPRESSION IN HIGH ENERGY HEAVY-ION COLLISIONS	422
<i>R Katz, P B Gossiaux</i>	
STUDIES OF ONIA AND STRANGENESS PRODUCTION IN PROTON-PROTON COLLISIONS AT LHCb	426
<i>N H Brook</i>	

THERMAL MODELS AND HYDRO

PRODUCTION OF STRANGE, NON-STRANGE PARTICLES AND HYPERNUCLEI IN AN EXCLUDED-VOLUME MODEL.....	430
<i>S K Tiwari, C P Singh</i>	
STRANGENESS AT HIGH TEMPERATURES.....	434
<i>C Schmidt</i>	

SYSTEMATIC PROPERTIES OF THE TSALLIS DISTRIBUTION: ENERGY DEPENDENCE OF PARAMETERS	438
<i>J Cleymans</i>	
ELLIPTIC FLOW FROM FKLN INITIAL CONDITIONS	442
<i>F Scardina, M Ruggieri, S Plumari, V Greco</i>	

PA COLLISIONS

MEASUREMENT OF D-MESON PRODUCTION IN P-PB COLLISIONS WITH THE ALICE DETECTOR	446
<i>G Luparello</i>	
MEASUREMENT OF ELECTRONS FROM HEAVY-FLAVOUR HADRON DECAYS IN PP AND P-PB COLLISIONS WITH ALICE	450
<i>M Heide</i>	
D MESON-HADRON ANGULAR CORRELATIONS IN PP AND P-PB COLLISIONS WITH ALICE AT THE LHC	454
<i>F Colamaria</i>	
INCLUSIVE J/ψ PRODUCTION IN P-PB COLLISIONS WITH ALICE AT THE LHC	458
<i>I Lakomov</i>	
TWO-PARTICLE CORRELATIONS IN P-PB COLLISIONS AT THE LHC WITH ALICE	463
<i>L Milano</i>	
TRANSVERSE MOMENTUM DISTRIBUTIONS OF IDENTIFIED PARTICLES IN P-PB COLLISIONS AT $\sqrt{s_{NN}}=5.02$ TEV	467
<i>J Anielski</i>	

HYPERNUCLEI

RECENT RESULTS ON ULTRA-PERIPHERAL PB-PB AND P-PB COLLISIONS AT THE ALICE EXPERIMENT	471
<i>D T Takaki</i>	
PRODUCTION OF HYPERNUCLEI IN PB-PB COLLISIONS AT $\sqrt{s_{NN}} = 2.76$ TEV WITH ALICE AT THE LHC	476
<i>R Lea</i>	
SEARCH FOR EXOTIC HYPER-MATTER AND MEASUREMENT OF NUCLEI WITH ALICE AT THE LHC	480
<i>B Donigus</i>	

QUARKONIA AND HEAVY FLAVOUR

MEASUREMENTS OF $J/\psi \rightarrow E^+E^-$ WITH ALICE AT THE LHC	484
<i>F Fionda</i>	
CHARMONIUM PRODUCTION MEASUREMENTS IN PB-PB COLLISIONS WITH ALICE AT THE LHC	488
<i>L V Palomo</i>	
UPSILON PRODUCTION IN PB-PB AND P-PB COLLISIONS AT FORWARD RAPIDITY WITH ALICE AT THE LHC	492
<i>P Khan</i>	
OPEN HEAVY FLAVOR PRODUCTION IN HEAVY-ION COLLISIONS FROM STAR	496
<i>Y Zhang</i>	

THERMAL MODELS

DYNAMICAL FREEZE-OUT CRITERION IN EVENT-BY-EVENT HYDRODYNAMICS	500
<i>H Holopainen, P Huovinen</i>	
Author Index	