XLIII International Symposium on Multiparticle Dynamics

Sunday, 15 September 2013 - Friday, 20 September 2013



Book of Abstracts

ii

Contents

Opening Remark	1
Boosted heavy particles and jet substructure using ATLAS data	1
Hadronic final states in high-pT QCD with the CMS detector	1
Hadronic final states in high-pT QCD at CDF	1
Hadronic final states in high-pT QCD with the ATLAS detector	1
Boosted heavy particles and jet substructure with the CMS detector	1
Recent HERA results on diffraction and forward physics	1
Diffractive physics at the LHC	1
Central Exclusive Production in CDF	2
Recent ATLAS results on HI collisions	2
Multi-particle aspects of high-density systems in heavy ion collisions with the ATLAS detector	2
Review of RHIC heavy-ion results	2
Recent Heavy Ion Results with the ALICE Detector	2
Recent results on UE and double parton scattering with the CMS detector	2
Recent results on UE and double parton scattering with the ATLAS detector	2
Introduction: Aspects of soft QCD, correlations, particle spectra and multiplicities	2
Recent Heavy Ion Results with the CMS Detector (Hard and EM Probes)	3
Cosmic Ray Atmospheric Showers and High Energy Hadronic Interaction Models \ldots	3
Overview of Higgs results with the CMS detector	3
Overview of ATLAS Higgs results	3
Introduction	3
BSM searches in multi-objects final states at TEVATRON	3
BSM searches in multi-objects final states with the CMS detector	3

BSM searches in multi-objects final states with the ATLAS detector	4
Review of Gamma Ray Astronomy	4
Particle and Nuclear Astrophysics with Supernova Neutrinos	4
Recent CMS experiment results on multiparticle aspects of high-density systems in heavy- ion collisions	4
Recent CMS experiment results on multiparticle aspects of high-density systems in heavy- ion collisions	4
Studies of the helix model using pp collisions	4
Recent results on vector boson production in association with jets with the ATLAS detector	4
Resent results on vector boson production in association with jets with the CMS detector	4
Introduction and UE Findings from the Tevatron Energy Scan	4
Recent STAR Results from the RHIC Beam Energy Scan	5
Large x Physics: Recent Results and Future Plans	5
Inclusive measurements at HERA from low to high x	5
Particle production sources in heavy-ion collisions at RHIC and LHC	5
The challenges of high luminosity and jets	5
Color Reconnection and Its Effect on Precise Measurements at the LHC	5
Underlying Event Studies at the Tevatron and the LHC"	5
Recent results from the D0 experiment on heavy particle production with jets	5
Theory overview	6
Summary of Snowmass2013 High Energy Frontier	6
A vision for future of particle physics	6
Polarised Drell-Yan physics at COMPASS	6
Boost2013 Summary	6
Physics implications of correlation data from the RHIC and LHC heavy-ion programs	6
Recent results from ALICE	6
Measurement of anisotropic radial flow in relativistic heavy ion collisions	6
Multi-lepton new physics searches	7
Jet and new physics searches	7

Improved isolation of the p-p Underlying Event based on minimum-bias trigger-associated hadron correlations	7
High cumulants from the 3-dimensional O(1, 2, 4) spin models	7
Particle production at large momentum transfer.	7
Recent results from the search for the critical point of strongly interacting matter at the CERN SPS	7
Theory overview of SM Higgs results	7
Theory overview of BSM Higgs results	7
Minimum-bias angular and trigger-associated correlations from 200 GeV p-p collisions: jets, flows, centrality and the underlying event	7
The Status of QCD Diffractive Physics in DIS on Protons and Nuclei	8
Central exclusive production and the Durham diffractive program	8
Diffractive cross sections implemented in PYTHIA8-MBR vs LHC results	8
Improved isolation of the p-p Underlying Event based on minimum-bias trigger-associated hadron correlations	8
Measurement of anisotropic radial flow in relativistic heavy ion collisions	8
Measurement of charged kaon correlations at small relative momentum in the SELEX experiment	8
Proton structure in the Higgs era	8
Polarised Drell-Yan physics at COMPASS	9
Measurement of Charged Particle Spectra in DIS	9
The challenges of high luminosity and jets	9
Polarised Drell-Yan physics at COMPASS	9
The phase diagram of QCD from lattice simulations	9
New Observables for Jet Substructure	9
Qjets: a multiparticle tool	9
Recent developments in Monte Carlo simulations	9
Review of parton showers	9
The Potential Importance of Low Luminosity and High Energy at the LHC	10
HERAFitter poster	10
Exploring the phase structure and dynamics of QCD	10
Recent RHIC BES-I Results	10

Energy Dependence of Strangeness Production	10
Heavy Flavor Productions at RHIC	10
High multiplicity in pp interactions at U-70	10
Measurement of inclusive and exclusive hadronic cross sections at BABAR	10
Kaon Freeze-out Dynamics in sqrt(s_NN)=200GeV Au+Au Collisions at RHIC	11
Study of limiting fragmentation in p+Pb collisions at 158 GeV	11
Collective dynamics of the p-Pb collisions at the LHC	11
APPLGRID: A posteriori inclusion of parton denstities in NLO QCD final state calculations	11
Boosted HH->bb bb: a new topology in searches for TeV-scale resonances at the LHC	11
PDFs for Higgs physics	11
Measurement of the strong coupling alpha_S from the three-jet rate in e+e annihilation using JADE data	11
ATLAS measurements of boosted W/Z bosons in pp collisions	11
Measurement of the strong coupling alpha_S from the three-jet rate in e+e annihilation using JADE data	11
Searching for W' bosons at LHC with Single Top Production	12
Computing the Universe	12
Welcome to IIT	12
Welcome to ISMD	12
Welcome at Hermann Hall at IIT. We will have some refreshment / snack and the organizers can help you with some useful information (how to reach your hotel etc.). If you want, you can also register. You can park your car from both sides of the Hermann hall (State Str. or Federal St). Parking is free on Sunday.	12
Welcome at Hermann Hall at IIT. We will have some refreshment / snack and the organizers can help you with some useful information (how to reach your hotel etc.). If you want, you can also register. You can park your car from both sides of the Hermann hall (State Str. or Federal St). Parking is free on Sunday.	12
Study of pp interactions at high multiplicity at U-70	12
Stochastic mechanizm of color confinement	13
Proton structure from multiparticle contribution to elastic pp-scattering at 7 TeV	13

Opening Remark

Corresponding Author: zack.sullivan@iit.edu

3

Boosted heavy particles and jet substructure using ATLAS data

4

Hadronic final states in high-pT QCD with the CMS detector

5

Hadronic final states in high-pT QCD at CDF

6

Hadronic final states in high-pT QCD with the ATLAS detector

8

Boosted heavy particles and jet substructure with the CMS detector

9

Recent HERA results on diffraction and forward physics

Diffractive physics at the LHC

11

Central Exclusive Production in CDF

Author: Michael Albrow^{None}

12

Recent ATLAS results on HI collisions

13

Multi-particle aspects of high-density systems in heavy ion collisions with the ATLAS detector

14

Review of RHIC heavy-ion results

15

Recent Heavy Ion Results with the ALICE Detector

16

Recent results on UE and double parton scattering with the CMS detector

17

Recent results on UE and double parton scattering with the AT-LAS detector

Introduction: Aspects of soft QCD, correlations, particle spectra and multiplicities

19

Recent Heavy Ion Results with the CMS Detector (Hard and EM Probes)

Author: Yen-Jie Lee¹

¹ CERN

20

Cosmic Ray Atmospheric Showers and High Energy Hadronic Interaction Models

21

Overview of Higgs results with the CMS detector

22

Overview of ATLAS Higgs results

23

Introduction

24

BSM searches in multi-objects final states at TEVATRON

25

BSM searches in multi-objects final states with the CMS detector

BSM searches in multi-objects final states with the ATLAS detector

27

Review of Gamma Ray Astronomy

28

Particle and Nuclear Astrophysics with Supernova Neutrinos

29

Recent CMS experiment results on multiparticle aspects of highdensity systems in heavy-ion collisions

30

Recent CMS experiment results on multiparticle aspects of highdensity systems in heavy-ion collisions

31

Studies of the helix model using pp collisions

32

Recent results on vector boson production in association with jets with the ATLAS detector

33

Resent results on vector boson production in association with jets with the CMS detector

Introduction and UE Findings from the Tevatron Energy Scan

35

Recent STAR Results from the RHIC Beam Energy Scan

36

Large x Physics: Recent Results and Future Plans

37

Inclusive measurements at HERA from low to high x

38

Particle production sources in heavy-ion collisions at RHIC and LHC

39

The challenges of high luminosity and jets

Corresponding Author: zack.sullivan@iit.edu

40

Color Reconnection and Its Effect on Precise Measurements at the LHC

41

Underlying Event Studies at the Tevatron and the LHC"

Recent results from the D0 experiment on heavy particle production with jets

44

Theory overview

46

Summary of Snowmass2013 High Energy Frontier

47

A vision for future of particle physics

48

Polarised Drell-Yan physics at COMPASS

49

Boost2013 Summary

50

Physics implications of correlation data from the RHIC and LHC heavy-ion programs

51

Recent results from ALICE

52

Measurement of anisotropic radial flow in relativistic heavy ion collisions

Corresponding Author: wuyf@iopp.ccnu.edu.cn

Multi-lepton new physics searches

54

Jet and new physics searches

58

Improved isolation of the p-p Underlying Event based on minimumbias trigger-associated hadron correlations

Corresponding Author: ttrainor99@gmail.com

59

High cumulants from the 3-dimensional O(1, 2, 4) spin models

61

Particle production at large momentum transfer.

Author: Sauter Werner^{None}

62

Recent results from the search for the critical point of strongly interacting matter at the CERN SPS

63

Theory overview of SM Higgs results

64

Theory overview of BSM Higgs results

Minimum-bias angular and trigger-associated correlations from 200 GeV p-p collisions: jets, flows, centrality and the underlying event

67

The Status of QCD Diffractive Physics in DIS on Protons and Nuclei

68

Central exclusive production and the Durham diffractive program

69

Diffractive cross sections implemented in PYTHIA8-MBR vs LHC results

Corresponding Author: dino@rockefeller.edu

70

Improved isolation of the p-p Underlying Event based on minimumbias trigger-associated hadron correlations

71

Measurement of anisotropic radial flow in relativistic heavy ion collisions

72

Measurement of charged kaon correlations at small relative momentum in the SELEX experiment

Proton structure in the Higgs era

75

Polarised Drell-Yan physics at COMPASS

76

Measurement of Charged Particle Spectra in DIS

77

The challenges of high luminosity and jets

78

Polarised Drell-Yan physics at COMPASS

79

The phase diagram of QCD from lattice simulations

80

New Observables for Jet Substructure

81

Qjets: a multiparticle tool

82

Recent developments in Monte Carlo simulations

Review of parton showers

84

The Potential Importance of Low Luminosity and High Energy at the LHC

Corresponding Author: arw@anl.gov

86

HERAFitter poster

88

Exploring the phase structure and dynamics of QCD

89

Recent RHIC BES-I Results

90

Energy Dependence of Strangeness Production

91

Heavy Flavor Productions at RHIC

92

High multiplicity in pp interactions at U-70

Corresponding Author: kokoulin@sunse.jinr.ru

93

Measurement of inclusive and exclusive hadronic cross sections at BABAR

Kaon Freeze-out Dynamics in sqrt(s_NN)=200GeV Au+Au Collisions at RHIC

97

Study of limiting fragmentation in p+Pb collisions at 158 GeV

98

Collective dynamics of the p-Pb collisions at the LHC

99

APPLGRID: A posteriori inclusion of parton denstities in NLO QCD final state calculations

101

Boosted HH->bb bb: a new topology in searches for TeV-scale resonances at the LHC

102

PDFs for Higgs physics

103

Measurement of the strong coupling alpha_S from the three-jet rate in e+e- - annihilation using JADE data

104

ATLAS measurements of boosted W/Z bosons in pp collisions

105

Measurement of the strong coupling alpha_S from the three-jet rate in e+e- - annihilation using JADE data

106

Searching for W' bosons at LHC with Single Top Production

107

Computing the Universe

108

Welcome to IIT

109

Welcome to ISMD

Corresponding Author: zack.sullivan@iit.edu

110

Welcome at Hermann Hall at IIT. We will have some refreshment / snack and the organizers can help you with some useful information (how to reach your hotel etc.). If you want, you can also register. You can park your car from both sides of the Hermann hall (State Str. or Federal St). Parking is free on Sunday.

111

Welcome at Hermann Hall at IIT. We will have some refreshment / snack and the organizers can help you with some useful information (how to reach your hotel etc.). If you want, you can also register. You can park your car from both sides of the Hermann hall (State Str. or Federal St). Parking is free on Sunday.

112

Study of pp interactions at high multiplicity at U-70

Stochastic mechanizm of color confinement

114

Proton structure from multiparticle contribution to elastic ppscattering at 7 TeV