14th MCnet Meeting

Report of Contributions

https://indico.cern.ch/e/MCnet14thNetworkMeeting

Contribution ID: **1** Type: **not specified**

Thermodynamical String Fragmentation

Thursday 24 November 2016 16:45 (15 minutes)

We study a few possible modifications to the Pythia string fragmentation: a new model for generating the transverse momentum of hadrons, inspired by thermodynamics, the effect of close-packing of strings, and a simple model for hadron rescattering. We present the modified predictions and compare to data as well as to default Pythia.

Author: FISCHER, Nadine (Monash University)

Presenter: FISCHER, Nadine (Monash University)

Session Classification: Student and Postdoc Talks

Contribution ID: **2** Type: **not specified**

A framework for second-order parton showers

Friday 25 November 2016 09:30 (15 minutes)

A framework is presented for including second-order perturbative corrections to the radiation patterns of parton showers. The formalism allows to combine $O(\alpha_s^2)$-corrected iterated $2\to3$ kernels for "ordered" gluon emissions with tree-level $2\to4$ kernels for "unordered" ones. The combined Sudakov evolution kernel is thus accurate to $O(\alpha_s^2)$. As a first step towards a full-fledged implementation of these ideas, we develop an explicit implementation of $2\to4$ shower branchings in this letter.

Author: LI, Haitao (Monash)

Presenter: LI, Haitao (Monash)

Session Classification: Student and Postdoc Talks

Contribution ID: **3** Type: **not specified**

The Contur method

Thursday 24 November 2016 16:15 (15 minutes)

A short overview of the Contur method, constraining new physics with standard model signatures.

Author: BUTTERWORTH, Jonathan (University College London (UK))

Presenter: GRELLSCHEID, David

Session Classification: Student and Postdoc Talks

Contribution ID: **4** Type: **not specified**

Introduction

Wednesday 23 November 2016 17:35 (5 minutes)

David Yallup introduction.

Author: YALLUP, David (University College London)

Presenter: YALLUP, David (University College London)

Session Classification: Student and Postdoc Talks

Contribution ID: **5** Type: **not specified**

Introduction

Wednesday 23 November 2016 17:40 (5 minutes)

Introduction

Author: Dr MAIER, Andreas (Durham IPPP)

Presenter: Dr MAIER, Andreas (Durham IPPP)

Session Classification: Student and Postdoc Talks

Contribution ID: **6** Type: **not specified**

Introduction

Wednesday 23 November 2016 17:45 (5 minutes)

Introduction again.

Author: OSTROLENK, Kiran (University of Manchester)

Presenter: OSTROLENK, Kiran (University of Manchester)

Session Classification: Student and Postdoc Talks

Contribution ID: **7** Type: **not specified**

NLO QCD and EW calculations with Recola and Sherpa

Friday 25 November 2016 09:45 (15 minutes)

Precision in Monte Carlo predictions is becoming increasingly important as experiments continually improve. One key way this is achieved in Monte Carlo event simulations is to include the higher-order effects from perturbation theory in the matrix element calculation. This has been completed at NLO QCD, and progress is already being made into NNLO QCD automation. At this level of precision, NLO EW effects also become significant, and I will talk about the inclusion of NLO EW effects to the matrix element with the SHERPA event generator.

Author: THOMPSON, Jennifer (Durham University)

Presenter: THOMPSON, Jennifer (Durham University)

Session Classification: Student and Postdoc Talks

Contribution ID: **8** Type: **not specified**

Introduction

Wednesday 23 November 2016 17:30 (5 minutes)

I will briefly introduce myself and talk about my studentship project.

Author: NORDSTROM, Karl (University of Glasgow)

Presenters: NORDSTROM, Karl Anders (Deutsches Elektronen-Synchrotron (DE)); NORDSTROM, Karl (University of Glasgow)

Session Classification: Student and Postdoc Talks

Contribution ID: **9** Type: **not specified**

Top EFT at NLO in QCD Progress within MG5_aMC

Thursday 24 November 2016 16:00 (15 minutes)

Author: VRYONIDOU, Eleni (Nikhef)

Presenter: VRYONIDOU, Eleni (Nikhef)

Session Classification: Student and Postdoc Talks

Contribution ID: **10** Type: **not specified**

Photon-photon interactions in e+e- collisions with Pythia 8

Thursday 24 November 2016 16:30 (15 minutes)

Photon-photon interactions arising from the photons emitted by high-energy leptons will generate inevitable background processes for future electron-positron colliders. Therefore means to accurately simulate these interactions are required in order to study the realistic physics potential of these future experiments. We have been working on an implementation of these interactions into Pythia 8 Monte-Carlo generator. We will first discuss what are the relevant processes in these interactions and how these can be generated using equivalent photon approximation and parton distribution functions for resolved photons. Then we will present our recent developments including options to simulate also soft QCD processes and multiple partonic interactions in resolved photon-photon collisions. Combining these with unresolved processes enables full simulations of particle production in photon-photon interactions from lepton beams. The results for charged particle and jet production are compared to data from LEP experiments. The comparisons indicate that multipartonic interactions do play a role also in photon-photon collisions but further studies are still required to obtain accurate description of the data.

Author: Dr HELENIUS, Ilkka (Tübingen University)

Presenter: Dr HELENIUS, Ilkka (Tübingen University)

Session Classification: Student and Postdoc Talks

Contribution ID: **11** Type: **not specified**

A new model for soft interactions in Herwig

Friday 25 November 2016 09:15 (15 minutes)

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Author: Mr KIRCHGAESSER, Patrick (KIT)

Presenter: Mr KIRCHGAESSER, Patrick (KIT)

Session Classification: Student and Postdoc Talks

Contribution ID: **12** Type: **not specified**

Top tagging with deep neural networks

Friday 25 November 2016 09:00 (15 minutes)

The identification of so-called 'boosted' objects; heavy particles whose decay products are highly collimated in the detector, is now a standard part of the event reconstruction toolbox at the LHC. Several QCD-inspired methods that exploit the different signatures between heavy particle decays and soft QCD backgrounds are now well-established. An intriguing new paradigm; 'Jet Images', has recently been proposed, which makes use of training deep neural network algorithms designed for image/facial recognition software, but applies them in the context of classifying boosted event topologies at the LHC. I will discuss an application of these methods to identifying hadronically decaying tops. I show how these methods can offer comparable or even superior performance to currently-used taggers, and speculate on what physics features the network may be learning.

Author: RUSSELL, Michael (University of Glasgow)

Presenter: RUSSELL, Michael (University of Glasgow)

Session Classification: Student and Postdoc Talks

Contribution ID: **13** Type: **not specified**

Living Resource: Warm-Up Discussion

Wednesday 23 November 2016 17:50 (10 minutes)

Presenters: GRELLSCHEID, David; GRELLSCHEID, David (IPPP Durham)

Session Classification: Student and Postdoc Talks

Contribution ID: **14** Type: **not specified**

Welcome

Wednesday 23 November 2016 15:55 (5 minutes)

Contribution ID: **15** Type: **not specified**

MCplots

Thursday 24 November 2016 17:00 (20 minutes)

Presenter: FIELD, Laurence (CERN)

Session Classification: Student and Postdoc Talks

Contribution ID: **16** Type: **not specified**

Herwig Overview

Thursday 24 November 2016 10:20 (20 minutes)

Presenter: PLATZER, Simon (University of Durham (GB))

Session Classification: Overview Talks

Contribution ID: **17** Type: **not specified**

Sherpa Overview

Thursday 24 November 2016 10:00 (20 minutes)

Presenter: SCHUMANN, Steffen (Georg-August-Universitaet Goettingen)

Session Classification: Overview Talks

Contribution ID: **18** Type: **not specified**

Pythia Overview

Thursday 24 November 2016 10:40 (20 minutes)

Presenter: SKANDS, Peter (Monash University (AU))

Session Classification: Overview Talks

Contribution ID: **19** Type: **not specified**

MadGraph Overview

Thursday 24 November 2016 11:30 (20 minutes)

Presenter: MATTELAER, Olivier Pierre C (IPPP Durham)

Session Classification: Overview Talks

Contribution ID: **20** Type: **not specified**

Rivet Overview

Thursday 24 November 2016 11:50 (20 minutes)

Presenter: POLLARD, Chris (University of Glasgow (GB))

Session Classification: Overview Talks

Contribution ID: **21** Type: **not specified**

Ariadne/Dipsy Overview

Thursday 24 November 2016 14:00 (20 minutes)

Presenter: LÖNNBLAD, Leif (Lund University (SE))

Session Classification: Overview Talks

Contribution ID: **22** Type: **not specified**

HEJ Overview

Thursday 24 November 2016 14:20 (20 minutes)

Presenter: SMILLIE, Jennifer (Higgs Centre for Theoretical Physics, Edin. U.)

Session Classification: Overview Talks

Contribution ID: **23** Type: **not specified**

Blue Yonder

Wednesday 23 November 2016 16:00 (30 minutes)

Presenter: BAHR, Manuel (Unknown)

Session Classification: Special Session

Contribution ID: **24** Type: **not specified**

IBA

Wednesday 23 November 2016 16:30 (30 minutes)

Presenter: STICHELBAUT, Frederic (Ion Beam Applications)

Session Classification: Special Session

Contribution ID: **25** Type: **not specified**

Anosov-Kolmogorov C-K systems and MIXMAX pseudorandom number generator for MC simulations

Wednesday 23 November 2016 17:00 (30 minutes)

Presenter: SAVVIDIS, Georgios (Nat. Cent. for Sci. Res. Demokritos (GR))

Session Classification: Special Session