Level 1 Scouting Workshop

Report of Contributions

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

Are there New Physics signatures that could have escaped so far?

Monday, 4 September 2023 17:00 (50 minutes)

A review of models whose signatures either could have escaped if not purposefully searched for or which due to the current way data are managed/processed/analyzed we have little sensitivity for

Presenters: LIU, Zhen; LIU, Zhen (University of Minnesota (US)); LIU, Zhen

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

Current results from searches for exotic signatures

Monday, 4 September 2023 09:30 (40 minutes)

A review of the experimental results (mainly from CMS and ATLAS, but not only) on signatures with non-SM final states.

Presenter: SOFFI, Livia (INFN Roma I (IT))

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

Where and how we can improve on exotic signatures

Monday, 4 September 2023 10:35 (40 minutes)

With focus on phase-2, what improvements could we expect thanks to the new trigger system and new detectors

Presenter: RIZZI, Andrea (Universita & INFN Pisa (IT))

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

Design and limitations of the 40 MHz scouting system for Run 3

Monday, 4 September 2023 11:20 (30 minutes)

The plans for the 40 MHz scouting system during Run 3, its ultimate design and limitations.

Presenter: RABADY, Dinyar (CERN)

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

Status of current 40 MHz scouting system: a technical overview

Monday, 4 September 2023 13:45 (30 minutes)

Technical description of the current infrastructure, both hardware and software. Path towards the ultimate implementation for Run3.

Presenter: JAMES, Thomas Owen (CERN)

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

Properties of the current scouting data: GMT Muons

Monday, 4 September 2023 14:20 (20 minutes)

The data we are gathering, its quality and features. Their usage as tool for monitoring and studying the L1 system.

Presenter: GIORGETTI, Sabrina (Universita e INFN, Padova (IT))

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

Possible measurements with current scouting data

Monday, 4 September 2023 16:30 (30 minutes)

Are there physics measurement that can be performed with the legacy L1 trigger information?

Presenter: ZANETTI, Marco (Universita e INFN, Padova (IT))

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

40 MHz scouting for Luminosity monitoring

Monday, 4 September 2023 17:50 (30 minutes)

How the scouting could be used to monitor the Luminosity, which source is best suited, the biases that could affect the measurements.

Presenter: OROPEZA BARRERA, Cristina (Universidad Iberoamericana (MX))

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

Phase II L1 trigger objects and menu: the physics potential of a 40 MHz scouting system

Tuesday, 5 September 2023 09:00 (40 minutes)

Review of the expected performances of the Phase II L1 trigger reconstruction and L1 Physics Menu. How close the L1 reconstruction will it be to the offline one, and which physics potentials can have a 40 MHz scouting system with respect to the L1 Physics Menu

Presenter: BOTTA, Cristina (University of Zurich (CH))

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

The 40 MHz scouting system for Phase II

Tuesday, 5 September 2023 10:00 (30 minutes)

How the current infrastructure will evolve and what its main figures will be.

Presenter: Dr MESCHI, Emilio (CERN)

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

The Phase II 40 MHz scouting Physics program

A tentative list of signals which can be best addressed with the scouting data. Results from the preliminary studies conducted so far(e.g. W to 3pi). Other analyzes that we could/should getting started with

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

HLT Scouting overview: results, perspectives, limitations

Tuesday, 5 September 2023 15:00 (30 minutes)

Overview of the HLT scouting, the current infrastructure, the results obtained so far and those expected in the future. What are the main limitations and solutions to overcome them?

Presenter: MASCIOVECCHIO, Mario (Univ. of California San Diego (US))

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

Computing models for online/offline analysis

Tuesday, 5 September 2023 15:45 (30 minutes)

Solutions should be found on how to manage and process the amount of scouting data. How shall the online analysis be organized? What shall be left for offline?

Presenter: MIGLIORINI, Matteo (Universita e INFN, Padova (IT))

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

New Physics agnostic analyses: anomaly detection on scouting data

Tuesday, 5 September 2023 16:30 (30 minutes)

Triggerless data acquisition allows a partial removal of the biases with which we search for NP; 40 MHz scouting is a suitable place where to employ anomaly detection techniques (a.k.a. model-independent analysis). How shall that be practically organized? Can it be run online?

Presenter: AARRESTAD, Thea (ETH Zurich (CH))

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

The Enhanced Physics Reach of CMS with an enabled scouting system

Wednesday, 6 September 2023 09:00 (30 minutes)

How the physics potential of the experiment will benefit from a scouting system. A few examples and comparisons.

Presenter: PIERINI, Maurizio (CERN)

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

Wrap-up and Conclusions

Wednesday, 6 September 2023 09:40 (1 hour)

Summary discussion. Definition of the to-do list and next steps

Presenter: PAZZINI, Jacopo (Università e INFN, Padova (IT))

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

Properties of the current scouting data: Calorimetric Objects and BMTF primitives

Monday, 4 September 2023 14:45 (20 minutes)

The data we are gathering, its quality and features. Their usage as tool for monitoring and studying the L1 system.

Presenter: Mr ARDINO, Rocco (Universita e INFN, Padova (IT))

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

Welcome and Introduction to the workshop

Monday, 4 September 2023 09:00 (20 minutes)

Presenters: Dr MESCHI, Emilio (CERN); ZANETTI, Marco (Universita e INFN, Padova (IT))

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

GNN based τ->3μ analysis

Tuesday, 5 September 2023 17:15 (20 minutes)

Presenter: LIU, Miaoyuan (Purdue University (US))

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

Fast Machine Learning for online scouting studies: applications and implementations

Monday, 4 September 2023 15:10 (20 minutes)

Using machine learning to re-calibrate and classify L1 objects for improved online analysis potential. Implementation in FPGA with flexible high-level tools

Presenter: JAMES, Thomas Owen (CERN)

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

Scouting detector front-end data: the DT case

Monday, 4 September 2023 15:30 (20 minutes)

Phase 2 electronics being developed for the DT chambers allows reading out at 40 MHz the whole full-resolution detector data. The past and the current sector test at CMS is going to be presented as well as the next steps and possible developments.

Presenter: TRIOSSI, Andrea (Universita e INFN, Padova (IT))