

Welcome!

4th workshop of the

Forum on the Interpretation of the
LHC Results for BSM studies

CERN, 14-16 May 2018

Chairs: Sabine Kraml and Pat Scott

Goals of the Forum

- provide a platform for continued theory-experiment interaction on how to present the LHC results such that they will be maximally useful now and in the future
- support the development of public tools and related infrastructure enabling the (re)interpretation of the LHC results for the whole HEP community
- give feedback to the experimental collaborations on the impact of their analyses on wide classes of models, point out loopholes and ways to refine them
- make progress in theory predictions (including simulation tools) for confronting BSM models to the LHC data
- contribute to data and analysis preservation for the LHC

<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/InterpretingLHCresults>

Forum on the Interpretation of the LHC Results for BSM studies

The quest for new physics beyond the Standard Model is arguably the driving topic for Run 2 of the LHC. Indeed, the LHC collaborations are pursuing searches for new physics in a vast variety of channels. While the collaborations typically provide themselves interpretations of their results, for instance in terms of simplified models, **the full understanding of the implications of these searches requires the interpretation of the experimental results in the context of all kinds of theoretical models.** This is a very active field, with close theory-experiment interaction and with several public tools being developed.

With this forum, we want to provide a platform for continued discussion of topics related to the BSM (re)interpretation of LHC data, including the development of the necessary **public [RecastingTools](#)** and related infrastructure.

Meetings of this forum

- [4th workshop](#), 14-16 May 2018 at CERN
- [3rd workshop](#), 16-18 Oct 2017 at Fermilab
- [2nd workshop](#), 12-14 Dec 2016 at CERN
 - [Agenda](#) | [introduction](#) | [final discussion](#) | [WorkshopSummaryNotes](#)
- **Kick-off workshop: (Re)interpreting the results of new physics searches at the LHC**, 15-17 June 2016 at CERN
 - [Agenda](#) | [general discussion](#) | [KickoffSummaryNotes](#)

Mailing list

- CERN e-group: info-LHC-interpretation@cern.ch
- To subscribe, go to <https://simba3.web.cern.ch/simba3/SelfSubscription.aspx?groupName=info-lhc-interpretation>

Steering group

The steering group comprises a representative of each of the public recasting tools as well as a couple of individual LHC physicists. Current members are:

Jon Butterworth, Andy Buckley, Kyle Cranmer, Daniel Dercks, Matthias Danninger, Matthew Dolan, Benjamin Fuks, Marie-Helene Genest, Ahmed Ismail, Sabine Kraml, Frank Krauss, Michael Krämer, Nazila Mahmoudi, Michelangelo Mangano, Stefano Moretti, Pat Scott, Sezen Sekmen, Wolfgang Waltenberger, Nick Wardle, Andreas Weiler.

Topics

(unsorted, incomplete)

- Presentation of experimental results
- Digitized information, HepData
- Likelihoods; treatment of correlated uncertainties
- Dependence on signal assumption
- Use of simplified model results
- Recasting of MVA or BDT analyses
- Recasting long-lived particle searches
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- Public recasting tools
- Detector simulation
- Machine learning for recasting
- Analysis Description Accord (standard interface)
- Phenomenological studies of LHC constraints
- Impact of 'SM measurements'
- Use of Open Data
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Please contribute: during the workshop, on the twiki, in your collaboration, through work in small groups,

This Workshop

Today: focus on information from ATLAS, CMS and LHCb on their searches and measurements

- strategies for BSM interpretation; material for recasting
- sensitivity of prompt searches to long-lived particles
- particle-level measurements (SM, top, Higgs)
- (next-to) simplified likelihoods
- flavour anomalies in LHCb

Tomorrow: - progress on public tools
- a session on reinterpretation studies

Wednesday: focus on searches for long-lived particles
(joint day with LLP community workshop)

Coffee breaks: catered outside the auditorium
Lunches: on your own account (CERN restaurant)

Discussion

Each session: there is ample of time for questions and discussions with each talk — profit from it to get the most out of the workshop

General discussion tomorrow 6 pm: Please come and contribute !
We need your feedback on

- what works well and what works not so well in the Forum
- what should be changed / can be improved
- uncovered topics, suggestions for the next meeting
- any other comments you may have
- **should we write a report for the end of Run 2 ??**

If you can't join, feel free to send your feedback by email.



Enjoy !