COMPOSE-IT: Unitarity for composite models and beyond in the HL-LHC era

Report of Contributions

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

Review on composite models of excited leptons

Monday, 27 January 2020 10:00 (40 minutes)

Presenter: PANELLA, Orlando (PG)

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

Composite Majorana neutrinos and leptogenesis

Monday, 27 January 2020 13:55 (40 minutes)

Presenter: BIONDINI, Simone (Albert Einstein Center, Institute for Theoretical Physics - Uni Bern)

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

Perturbative unitarity bounds for effective composite models

Monday, 27 January 2020 10:40 (40 minutes)

Presenter: PRESILLA, Matteo (PD)

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

Excited lepton triplet contribution to electroweak observables at one loop level (TBC)

Tuesday, 28 January 2020 09:00 (40 minutes)

Presenters: GOMEZ, Mario (Univesidad de Huelva); REHMAN, Muhammad (Comsats University Islamabad)

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

Unitarization effects in EFT predictions of VBS at the LHC

Monday, 27 January 2020 14:35 (40 minutes)

Effective field theories are an incredibly powerful tool in order to study and understand the true nature of the symmetry breaking sector dynamics of the Standard Model. However, they can suffer from some theoretical problems such as that of unitarity violation. Nevertheless, in order to interpret experimental data correctly a fully unitary prescription is needed. To this purpose, unitarization methods are addressed, but each of them leads to a different (unitary) prediction. Because of this, there is an inherent theoretical uncertainty in the determination of the effective field theory parameters due to the choice of one unitarization scheme.

In this talk, I will present this uncertainty assuming a strongly interacting electroweak symmetry breaking sector, described by the effective electroweak chiral Lagrangian (or Higgs effective field theory). In particular, I focus on the WZ scattering as the main VBS channel to study the sensitivity to new physics at the LHC. Using various well known unitarization methods, I will show the different predictions at subprocess level, considering the full coupled system of helicity amplitudes. Then I will present the current experimental constraints and how the different predictions manifest in the pp collisions at the LHC. Finally, I will show the corresponding 95% C.L. exclusion regions for the most relevant electroweak chiral Lagrangian parameters involved in the WZ scattering depending on the unitarization method applied.

Presenter: MORALES, Roberto (Instituto de Física Teórica de Madrid (UAM-CSIC))

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

Review on exotic physics in CMS

Monday, 27 January 2020 16:10 (40 minutes)

Results from Run 2 and perspective for Run 3

Presenter: SOFFI, LIVIA (ROMA1)

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

Review on exotic physics ATLAS

Monday, 27 January 2020 16:50 (40 minutes)

Results from Run 2 and perspective for Run 3

Presenter: VERDUCCI, Monica (ROMA3)

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

EFT approach in Dark Matter searches

Monday, 27 January 2020 12:15 (40 minutes)

Presenter: ENRICO, Morgante

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

Review on diboson searches in CMS

Tuesday, 28 January 2020 11:15 (40 minutes)

Presenter: ZUCCHETTA, Alberto (PD)

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

Overview on SM and BSM top quark

Tuesday, 28 January 2020 10:20 (40 minutes)

Presenter: IORIO, Alberto Orso Maria (NA)

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

Introduction

Presenter: PANELLA, Orlando (PG)

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

Present status of LHC and perspectives for Run3 and HL

Tuesday, 28 January 2020 09:40 (40 minutes)

Evolution of triggers and data analysis tools

Presenter: TOSI, mia (Universita' degli Studi di Padova)

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

Search in ATLAS for excited letpon and dilepton high mass

Tuesday, 28 January 2020 11:55 (40 minutes)

Presenter: SIDOTI, Antonio (BO)

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

Phenomenology at the LHC of composite particles from strongly interacting Standard Model fermions via four-fermion operators of NJL type

Monday, 27 January 2020 11:35 (40 minutes)

Presenter: XUE, She-Sheng

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

Unitarity Constraints in BSM: new results in the 331 Models

Monday, 27 January 2020 15:15 (40 minutes)

We discuss the main features of the scalar sector of a class of BSM models with enlarged gauge symmetry, the so called 331 Models. The theoretical constraints on the scalar potential such as unitarity, perturbativity and boundedness-from-below, are presented. These results are based on a very-recent analysis that is suitable to be used in phenomenological studies for the exotic scenarios predicted by the 331 Models.

Presenter: COSTANTINI, Antonio (Istituto Nazionale di Fisica Nucleare)

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

Diboson search in ATLAS

Tuesday, 28 January 2020 12:35 (40 minutes)

Presenter: CIROTTO, Francesco (NA)