

# 5th RED LHC workshop



## Report of Contributions

Contribution ID: 1

Type: **not specified**

# Welcome

*Monday, 10 May 2021 09:30 (15 minutes)*

**Session Classification:** Anomalies

Contribution ID: 2

Type: **not specified**

## **Topping-up multilepton plus b-jets anomalies at the LHC with a Z' boson**

*Monday, 10 May 2021 09:45 (15 minutes)*

**Primary author:** JUSTE ROZAS, Aurelio (ICREA and IFAE (ES))

**Presenter:** JUSTE ROZAS, Aurelio (ICREA and IFAE (ES))

**Session Classification:** Anomalies

Contribution ID: 3

Type: **not specified**

## **Systematic approach to B-physics anomalies and t-channel dark matter**

*Monday, 10 May 2021 10:00 (15 minutes)*

**Primary author:** Dr MESCIA, Federico (Universitat de Barcelona)

**Presenter:** Dr MESCIA, Federico (Universitat de Barcelona)

**Session Classification:** Anomalies

Contribution ID: 4

Type: **not specified**

## **Lepton Flavour Universality tests at the LHCb experiment**

*Monday, 10 May 2021 10:15 (15 minutes)*

**Primary author:** GIOVENTU, Alessandra (Universidade de Santiago de Compostela (ES))

**Presenter:** GIOVENTU, Alessandra (Universidade de Santiago de Compostela (ES))

**Session Classification:** Anomalies

Contribution ID: 5

Type: **not specified**

## $B_s \rightarrow \mu\mu$ analysis

*Monday, 10 May 2021 10:30 (15 minutes)*

**Primary author:** MOMBÄCHER, Titus (Universidade de Santiago de Compostela (ES))

**Presenter:** MOMBÄCHER, Titus (Universidade de Santiago de Compostela (ES))

**Session Classification:** Anomalies

Contribution ID: 6

Type: **not specified**

## Search for EWK production of charginos and neutralinos in pp collisions at 13 TeV at CMS

*Monday, 10 May 2021 11:30 (15 minutes)*

**Primary author:** ERICE CID, Carlos Francisco (Universidad de Oviedo (ES))

**Presenter:** ERICE CID, Carlos Francisco (Universidad de Oviedo (ES))

**Session Classification:** Beyond the Standard Model

Contribution ID: 7

Type: **not specified**

## Search for light stop pairs in 2L final state at CMS

*Monday, 10 May 2021 11:45 (15 minutes)*

**Presenter:** GONZALEZ, Juan (Universidad de Oviedo (ES))

**Session Classification:** Beyond the Standard Model



Contribution ID: 8

Type: **not specified**

## Searches for new physics in lepton and missing transverse momentum final states in CMS

*Monday, 10 May 2021 12:15 (15 minutes)*

**Primary author:** BACHILLER PEREA, Irene (Centro de Investigaciones Energéticas Medioambientales y Tecnológicas)

**Presenter:** BACHILLER PEREA, Irene (Centro de Investigaciones Energéticas Medioambientales y Tecnológicas)

**Session Classification:** Beyond the Standard Model

Contribution ID: 9

Type: **not specified**

## **SUSY (edge y top/chargino) at CMS**

*Monday, 10 May 2021 12:00 (15 minutes)*

**Primary authors:** MARTINEZ, Pablo; MARTINEZ RUIZ DEL ARBOL, Pablo (Universidad de Cantabria and CSIC (ES))

**Presenters:** MARTINEZ, Pablo; MARTINEZ RUIZ DEL ARBOL, Pablo (Universidad de Cantabria and CSIC (ES))

**Session Classification:** Beyond the Standard Model

Contribution ID: **10**

Type: **not specified**

## Searches for dark matter in ATLAS

*Wednesday, 12 May 2021 11:45 (15 minutes)*

**Primary authors:** BOGAVAC, Danijela (IFAE - Barcelona (ES)); BOGAVAC, Danijela (The Barcelona Institute of Science and Technology (BIST) (ES))

**Presenters:** BOGAVAC, Danijela (IFAE - Barcelona (ES)); BOGAVAC, Danijela (The Barcelona Institute of Science and Technology (BIST) (ES))

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 11

Type: **not specified**

## Higgs WW at CMS

*Tuesday, 11 May 2021 10:15 (15 minutes)*

**Primary author:** PIEDRA GOMEZ, Jonatan (Universidad de Cantabria and CSIC (ES))

**Presenter:** PIEDRA GOMEZ, Jonatan (Universidad de Cantabria and CSIC (ES))

**Session Classification:** SM / EW / Higgs

Contribution ID: 12

Type: **not specified**

## **Search for Higgs-boson pair prod. in the $bb$ gamma gamma final state at 13 TeV at ATLAS**

*Tuesday, 11 May 2021 10:30 (15 minutes)*

**Primary author:** SAYAGO GALVAN, Ivan (Univ. of Valencia and CSIC (ES))

**Presenter:** SAYAGO GALVAN, Ivan (Univ. of Valencia and CSIC (ES))

**Session Classification:** SM / EW / Higgs

Contribution ID: 13

Type: **not specified**

## Standard Model Measurements at 5 TeV at CMS

*Tuesday, 11 May 2021 09:45 (15 minutes)*

**Primary author:** ALVAREZ GONZALEZ, Barbara (Universidad de Oviedo (ES))

**Presenter:** ALVAREZ GONZALEZ, Barbara (Universidad de Oviedo (ES))

**Session Classification:** SM / EW / Higgs

Contribution ID: 14

Type: **not specified**

## Semileptonic Hyperon Decays at LHCb

*Tuesday, 11 May 2021 09:30 (15 minutes)*

**Primary author:** BREA RODRIGUEZ, Alexandre (Universidade de Santiago de Compostela (USC), IGFAE)

**Presenter:** BREA RODRIGUEZ, Alexandre (Universidade de Santiago de Compostela (USC), IGFAE)

**Session Classification:** SM / EW / Higgs

Contribution ID: 15

Type: **not specified**

## **HEPfit: a code for the combination of indirect and direct constraints on high energy physics models**

*Tuesday, 11 May 2021 10:00 (15 minutes)*

**Primary authors:** DE BLAS, Jorge (INFN-Padova); Dr DE BLAS, Jorge (University of Padova); DE BLAS, Jorge (Universidad de Granada (ES)); Dr DE BLAS, Jorge (University of Padova); DE BLAS MATEO, Jorge (University of Notre Dame)

**Presenters:** DE BLAS, Jorge (INFN-Padova); Dr DE BLAS, Jorge (University of Padova); DE BLAS, Jorge (Universidad de Granada (ES)); Dr DE BLAS, Jorge (University of Padova); DE BLAS MATEO, Jorge (University of Notre Dame)

**Session Classification:** SM / EW / Higgs



Contribution ID: 16

Type: **not specified**

## **Higgs phenomenology as a probe of sterile neutrinos**

*Tuesday, 11 May 2021 10:45 (15 minutes)*

**Primary authors:** CHALA, Mikael; Dr CHALA, Mikael (University of Granada)

**Presenters:** CHALA, Mikael; Dr CHALA, Mikael (University of Granada)

**Session Classification:** SM / EW / Higgs

Contribution ID: 17

Type: **not specified**

## ttbar production with additional jets at CMS

*Tuesday, 11 May 2021 11:30 (15 minutes)*

**Primary author:** BROCHERO, Javier (Universidad de Cantabria and CSIC (ES))

**Presenter:** BROCHERO, Javier (Universidad de Cantabria and CSIC (ES))

**Session Classification:** Top / EFT

Contribution ID: **18**

Type: **not specified**

## **ttZ at ATLAS**

*Tuesday, 11 May 2021 11:45 (15 minutes)*

**Primary author:** CARDILLO, Fabio (Univ. of Valencia and CSIC (ES))

**Presenter:** CARDILLO, Fabio (Univ. of Valencia and CSIC (ES))

**Session Classification:** Top / EFT

Contribution ID: **19**

Type: **not specified**

## **Evidence for 4-top production in ATLAS**

*Tuesday, 11 May 2021 12:00 (15 minutes)*

**Primary author:** ORLANDO, Nicola (Institut de Fisica d'Altes Energies (IFAE))

**Presenter:** ORLANDO, Nicola (Institut de Fisica d'Altes Energies (IFAE))

**Session Classification:** Top / EFT

Contribution ID: 20

Type: **not specified**

## Beyond the SMEFT

*Tuesday, 11 May 2021 12:15 (15 minutes)*

**Primary author:** PEREZ-VICTORIA, Manuel (University of Granada)

**Presenter:** PEREZ-VICTORIA, Manuel (University of Granada)

**Session Classification:** Top / EFT

Contribution ID: 21

Type: **not specified**

## **DsixTools 2.0: the effective field theory toolkit**

*Tuesday, 11 May 2021 12:30 (15 minutes)*

**Primary author:** VIRTO, Javier (Universitat de Barcelona)

**Presenter:** VIRTO, Javier (Universitat de Barcelona)

**Session Classification:** Top / EFT

Contribution ID: 22

Type: **not specified**

## Top EW EFT couplings at LHC

*Tuesday, 11 May 2021 12:45 (15 minutes)*

**Primary author:** MIRALLES, Victor (IFIC)

**Presenter:** MIRALLES, Victor (IFIC)

**Session Classification:** Top / EFT

Contribution ID: 23

Type: **not specified**

## Non-resonant ALP Searches at the LHC

*Monday, 10 May 2021 12:30 (15 minutes)*

**Primary authors:** FERNANDEZ DE TROCONIZ, Jorge (Universidad Autonoma de Madrid (ES)); FERNANDEZ DE TROCONIZ, Jorge (Universidad Autonoma de Madrid (ES))

**Presenters:** FERNANDEZ DE TROCONIZ, Jorge (Universidad Autonoma de Madrid (ES)); FERNANDEZ DE TROCONIZ, Jorge (Universidad Autonoma de Madrid (ES)); TROCONIZ, Jorge

**Session Classification:** Beyond the Standard Model



Contribution ID: 24

Type: **not specified**

## **Bs/ALPs -> $\gamma\gamma$ and other exotica results at LHCb**

*Monday, 10 May 2021 12:45 (15 minutes)*

**Primary author:** CASAIS VIDAL, Adrian (Instituto Galego de Física de Altas Enerxías (ES))

**Presenter:** CASAIS VIDAL, Adrian (Instituto Galego de Física de Altas Enerxías (ES))

**Session Classification:** Beyond the Standard Model

Contribution ID: 25

Type: **not specified**

## Higgsino Dark Matter in the MSSM

*Wednesday, 12 May 2021 11:30 (15 minutes)*

**Primary author:** QUIROS CARCELEN, Mariano (The Barcelona Institute of Science and Technology (BIST) (ES))

**Presenter:** QUIROS CARCELEN, Mariano (The Barcelona Institute of Science and Technology (BIST) (ES))

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 26

Type: **not specified**

## Comparing Weak- and Unsupervised Methods for Resonant Anomaly Detection

*Wednesday, 12 May 2021 12:00 (15 minutes)*

**Presenter:** MARTÍN-RAMIRO, Pablo

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 27

Type: **not specified**

## Anomaly detection with supervised learning

*Wednesday, 12 May 2021 12:15 (15 minutes)*

**Primary author:** AGUILAR SAAVEDRA, Juan Antonio (LIP Laboratorio de Instrumentacao e Fisica Experimental de Part)

**Presenter:** AGUILAR SAAVEDRA, Juan Antonio (LIP Laboratorio de Instrumentacao e Fisica Experimental de Part)

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 28

Type: **not specified**

## $(g-2)_\mu$ and EW SUSY at the LHC

*Wednesday, 12 May 2021 09:30 (15 minutes)*

**Presenter:** HEINEMEYER, Sven (CSIC (Madrid, ES))

**Session Classification:** Muon  $(g-2)$  and implications for LHC

Contribution ID: 29

Type: **not specified**

## The new $g-2$ result and the $\mu\nu$ SSM

*Wednesday, 12 May 2021 09:45 (15 minutes)*

**Primary author:** MUNOZ, Carlos (Universidad Autonoma de Madrid)

**Presenter:** MUNOZ, Carlos (Universidad Autonoma de Madrid)

**Session Classification:** Muon ( $g-2$ ) and implications for LHC

Contribution ID: **30**

Type: **not specified**

## **Spin 3/2 or new fermions**

*Wednesday, 12 May 2021 10:00 (15 minutes)*

**Primary authors:** DJOUADI, Abdelhak (LPT Orsay); DJOUADI, Abdelhak (Unite Reseaux du CNRS (FR))

**Presenters:** DJOUADI, Abdelhak (LPT Orsay); DJOUADI, Abdelhak (Unite Reseaux du CNRS (FR))

**Session Classification:** Muon ( $g-2$ ) and implications for LHC

Contribution ID: 31

Type: **not specified**

## Low-energy flavor symmetry breaking and $(g-2)_\mu$ at LHC

*Wednesday, 12 May 2021 10:15 (15 minutes)*

**Primary author:** VIVES GARCIA, Oscar Manuel (Univ. of Valencia and CSIC (ES))

**Presenter:** VIVES GARCIA, Oscar Manuel (Univ. of Valencia and CSIC (ES))

**Session Classification:** Muon  $(g-2)$  and implications for LHC



Contribution ID: 32

Type: **not specified**

## **g-2 anomalies and neutrino mass**

*Wednesday, 12 May 2021 10:30 (15 minutes)*

**Primary author:** CEPPEDELLO, Ricardo (IFIC (CSIC-Univ. Valencia))

**Presenter:** CEPPEDELLO, Ricardo (IFIC (CSIC-Univ. Valencia))

**Session Classification:** Muon (g-2) and implications for LHC

Contribution ID: 33

Type: **not specified**

## Discussion

*Wednesday, 12 May 2021 10:45 (15 minutes)*

**Session Classification:** Muon (g-2) and implications for LHC

Contribution ID: 34

Type: **not specified**

## Future of Red LHC

*Wednesday, 12 May 2021 12:30 (30 minutes)*

**Presenter:** GARCIA, Carmen (Univ. of Valencia and CSIC (ES))

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 35

Type: **not specified**

**tbc**

**Session Classification:** Dark Matter / Machine learning / Future of Red LHC

Contribution ID: 36

Type: **not specified**

## Latest LHCb results on $\varphi$ s

*Monday, 10 May 2021 10:45 (15 minutes)*

**Primary author:** ROMERO, Marcos (Universidade de Santiago de Compostela (ES))

**Presenter:** ROMERO, Marcos (Universidade de Santiago de Compostela (ES))

**Session Classification:** Anomalies