

# **Standard Model at the LHC 2025**

## **Report of Contributions**

Contribution ID: 3

Type: **ESR Talk**

## Compact Two-Loop QCD Corrections for $Vjj$ Production in Proton Collisions

We consider two-loop QCD corrections in the leading color approximation for the production of a heavy electroweak vector boson,  $V = \{W^\pm, Z, \gamma^*\}$ , in association with two light jets ( $Vjj$ ) at hadron colliders. Leptonic decays of the electroweak boson are included at the amplitude level. We develop an approach that allows us to derive an analytic representation three orders of magnitude smaller than previously known results. This approach combines an improved choice of bases for rational coefficients, the construction of judiciously partial-fractioned ansätze, and iterative reconstruction in singular limits. We identify several recurring features of the amplitudes that we expect will facilitate analytic reconstruction and optimization of analytic representation for more complex amplitudes in the future. Finally, we provide an efficient and stable C++ numerical implementation of our results, ready for phenomenological applications.

**Authors:** PAGE, Ben; DE LAURENTIS, Giuseppe (University of Edinburgh); ITA, Harald; SOTNIKOV, Vasily

**Presenter:** DE LAURENTIS, Giuseppe (University of Edinburgh)

**Session Classification:** QCD

**Track Classification:** QCD

Contribution ID: 4

Type: ESR Talk

## Top-induced NLO electroweak corrections to di-Higgs boson production

Understanding the Higgs boson self-coupling is fundamental to uncovering the structure of the Higgs potential and testing the Standard Model (SM) at a deeper level. Among the various processes that probe this coupling, Higgs boson pair production *via* gluon fusion—a loop-induced mechanism—is among the primary ones. In particular, the electroweak (EW) sector plays a pivotal role in reducing theoretical uncertainties and enhancing the accuracy of the precision predictions for this process. Notably, next-to-leading-order (NLO) EW corrections calculated using the heavy top-quark mass expansion have demonstrated significant impacts, with corrections reaching as high as 65% at a partonic center-of-mass energy of around 260 GeV. Therefore, such predictions are essential for minimising theoretical uncertainties and improving predictions for the Large Hadron Collider (LHC) and its high-luminosity upgrade (HL-LHC).

In this talk, I will present our comprehensive calculation of the full top-induced NLO EW corrections to di-Higgs boson production *via* gluon fusion. Our calculations account for mixed NNLO QCD-EW contributions and focus on the top-Yukawa-induced corrections. The presence of multiple mass scales and complex hierarchies introduces ultraviolet and infrared divergences and numerical instabilities near virtual thresholds. This complexity necessitates specialised analytical and numerical methods. By retaining symbolic mass parameters and avoiding traditional reduction techniques, we achieve a level of precision and flexibility that is critical for future investigations. In my talk, I will cover all these aspects of our calculation. I will discuss the methods, results, and implications of our work, highlighting its relevance to current and future collider experiments. Therefore, our work aims to enhance the precision of theoretical tools needed to test the SM and explore the potential for new physics.

**Authors:** Dr BHATTACHARYA, Arunima (IFIC, University of Valencia); Prof. CAMPANARIO, Francisco (IFIC, University of Valencia-CSIC); CHANG, Jamie (PSI, Villigen); MAZZITELLI, Javier (PSI, Villigen); RONCA, Jonathan (Rome III U. and INFN, Rome3); SPIRA, Michael (Paul Scherrer Institut); MUEHLEITNER, Milada (Karlsruhe Institute of Technology); Mr CARLOTTI, Sauro (Karlsruhe Institute of Technology)

**Presenter:** Dr BHATTACHARYA, Arunima (IFIC, University of Valencia)

**Session Classification:** Higgs physics

**Track Classification:** Higgs physics

Contribution ID: 5

Type: **ESR Talk**

## Exploring Surprising Non-Perturbative Effects in Drell-Yan plus Jets

Non-perturbative effects present an important contribution to precise measurements of SM parameters. They are typically studied using Monte Carlo event generators that complement fixed-order predictions with non-perturbative models. These models are of empirical nature and need to be tuned to experimental measurements in order to provide accurate predictions. Once tuned, they are typically considered universal, being approximately accurate for all particle final states.

However, we observe that the non-perturbative modelling behaves differently for dijet and Drell-Yan plus jet processes. While separate hadronization effects show no unexpected behaviour and although perturbative effects play a role in the latter, further studies indicate that the observed nonconformities originate in the modelling of the underlying event. However, no measurement exists up to date that would be directly sensitive to these differences, so it remains to future measurements to ultimately confirm or rule out these features.

**Author:** HORZELA, Maximilian (Georg-August-Universität Göttingen)

**Co-authors:** SINGLA, Aayushi (Panjab University); VERSTEGE, Cedric (Karlsruhe Institute of Technology (KIT)); LEONARDI, Dari (Karlsruhe Institute of Technology (KIT)); RABBERTZ, Klaus (Karlsruhe Institute of Technology (KIT)); KAUR, Manjit (Panjab University); GIESEKE, Stefan (Karlsruhe Institute of Technology (KIT))

**Presenter:** HORZELA, Maximilian (Georg-August-Universität Göttingen)

**Session Classification:** QCD

**Track Classification:** QCD

Contribution ID: 7

Type: ESR Talk

## Measurements of Higgs boson associate production with a leptonically decaying vector boson in the H to $b\bar{b}/c\bar{c}$ decay channel within the ATLAS detector

With the highest expected branching-ratio (56%), the Higgs boson decay into a  $b$ -quark pair plays a crucial role in the determination of the Higgs Yukawa couplings, as well as its general properties. On the other end, the Higgs boson is expected to decay to  $c$ -quarks much more rarely, with a branching-ratio of 3%, and the search of this decay requires the state of the art of jet identification and analysis techniques. At the LHC, the best sensitivity to the  $H \rightarrow b\bar{b}/c\bar{c}$  decay is achieved exploiting the associate production of the Higgs boson with a vector boson, requesting its leptonic decay allowing for an efficient trigger capability and an effective multi-jet background rejection. In this talk, measurements of Higgs boson decays into  $b/c$ -quarks produced in association with a vector boson, made by the ATLAS experiment using the full Run2 dataset at  $\sqrt{s}$  13 TeV, are shown, together with the results of the combinations of the two channels.

**Author:** D'ANNIBALLE, Gabriele (Pisa)

**Co-author:** COLLABORATION, ATLAS

**Presenter:** D'ANNIBALLE, Gabriele (Pisa)

**Session Classification:** Higgs physics

**Track Classification:** Higgs physics

Contribution ID: 8

Type: ESR Talk

## Overview of ATLAS Forward Proton Detectors: Status, Performance and Physics Results

A key focus of the physics program at the LHC is the study of head-on proton-proton collisions. However, an important class of physics can be studied for cases where the protons narrowly miss one another and remain intact. In such cases, the electromagnetic fields surrounding the protons can interact producing high-energy photon-photon collisions. Alternatively, interactions mediated by the strong force can also result in intact forward scattered protons, providing probes of quantum chromodynamics (QCD). To detect and measure these events, the ATLAS Forward Proton (AFP) detectors are installed far downstream of the interaction point, capturing protons scattered at very small angles. This talk will give an overview of the AFP detectors, with a focus on the performance of its systems. We will also provide a glimpse of physics results published by now.

**Author:** ARBIOL VAL, Sergio Javier

**Co-author:** COLLABORATION, ATLAS

**Presenter:** ARBIOL VAL, Sergio Javier

**Session Classification:** QCD

**Track Classification:** QCD

Contribution ID: 10

Type: ESR Talk

## Second Order Corrections to Diphoton Transverse Momentum Distribution at the LHC

Photon pair production is an important benchmark process at the LHC, entering Higgs boson studies and new physics searches. It has been measured to high accuracy, allowing for detailed studies of event shapes in diphoton final states. In this talk, I present the second-order QCD corrections ( $\mathcal{O}(\alpha_s^3)$ ) of the production of a photon pair at non-zero transverse momentum. Comparison with the ATLAS data of arXiv:2107.09330 [hep-ex] is presented and the phenomenological impact is studied in detail.

**Authors:** Dr BUCCIONI, Federico (Technical University Munich); Dr MARCOLI, Matteo (University of Durham); Prof. GEHRMANN, Thomas (University of Zurich); FENG, Weijie; Dr CHEN, Xuan (Shandong University); Dr HUSS, Alexander (CERN)

**Presenter:** FENG, Weijie

**Session Classification:** QCD

**Track Classification:** QCD

Contribution ID: 12

Type: **not specified**

## **diboson at NNLO QCD+PS**

*Monday, April 7, 2025 3:40 PM (30 minutes)*

**Presenters:** GAVARDI, Alessandro (alessandro.gavardi@desy.de); GAVARDI, Alessandro (Università degli Studi di Milano-Bicocca)

**Session Classification:** Electroweak



Contribution ID: 13

Type: **not specified**

## **Recent measurements of diboson production (including VBS) from ATLAS and CMS**

*Monday, April 7, 2025 2:25 PM (25 minutes)*

**Presenter:** ROSSI, Elvira (Università Federico II and INFN Napoli)

**Session Classification:** Electroweak

Contribution ID: 14

Type: **not specified**

## **EFT in the EW sector from exp perspective - exp.**

**Session Classification:** Electroweak

Contribution ID: 15

Type: **not specified**

## **Off-shell computation of triboson (interplay with VH)**

*Thursday, April 10, 2025 11:20 AM (30 minutes)*

**Presenter:** SCHOENHERR, Marek (IPPP Durham)

**Session Classification:** Electroweak

Contribution ID: 16

Type: **not specified**

## **Recent measurements of triboson production, including overlap with VH production**

*Thursday, April 10, 2025 11:50 AM (30 minutes)*

**Author:** TARRICONE, Cristiano (Università degli Studi di Torino & INFN)

**Presenter:** TARRICONE, Cristiano (Università degli Studi di Torino & INFN)

**Session Classification:** Electroweak

Contribution ID: 17

Type: **not specified**

## **Precision measurements of Z boson production (with a focus on the weak mixing angle)**

*Tuesday, April 8, 2025 3:30 PM (25 minutes)*

**Presenter:** ABDELMOTTELEB, Ahmed (University of Warwick)

**Session Classification:** Joint QCD+EW

Contribution ID: 19

Type: **not specified**

## **Spectroscopy (Theory) [canceled]**

**Session Classification:** Flavour

Contribution ID: 20

Type: **not specified**

## **Spectroscopy (experiment)**

*Monday, April 7, 2025 12:20 PM (30 minutes)*

**Presenter:** GHIZZO, Simon (INFN e Università di Genova (IT))

**Session Classification:** Flavour

Contribution ID: 21

Type: **not specified**

## Rare decays (theory)

*Monday, April 7, 2025 11:20 AM (30 minutes)*

**Presenter:** BHARUCHA, Aoife (CPT Marseille)

**Session Classification:** Flavour



Contribution ID: 22

Type: **not specified**

## **Rare decays (experiment)**

*Monday, April 7, 2025 11:50 AM (30 minutes)*

**Presenter:** SAHOO, Niladri

**Session Classification:** Flavour

Contribution ID: 23

Type: **not specified**

## **CP violation, B mixing and lifetimes**

*Tuesday, April 8, 2025 2:45 PM (25 minutes)*

**Author:** NIERSTE, Ulrich (KIT)

**Presenter:** NIERSTE, Ulrich (KIT)

**Session Classification:** Flavour

Contribution ID: 24

Type: **not specified**

## CPV experiment

*Tuesday, April 8, 2025 1:40 PM (30 minutes)*

**Presenter:** VILLA, Andrea (University and INFN - Bologna)

**Session Classification:** Flavour

Contribution ID: 25

Type: **not specified**

## Future

*Tuesday, April 8, 2025 2:10 PM (35 minutes)*

**Presenter:** GUADAGNOLI, Diego

**Session Classification:** Flavour

Contribution ID: 26

Type: **not specified**

## **Recent experimental EFT result in the Higgs sector**

**Session Classification:** EFT

Contribution ID: 27

Type: **not specified**

## **Recent results on dimension-eight in EFT**

*Monday, April 7, 2025 2:00 PM (25 minutes)*

**Presenter:** GUEDES, Guilherme

**Session Classification:** EFT

Contribution ID: 28

Type: **not specified**

## Recent vector boson results

*Monday, April 7, 2025 2:50 PM (25 minutes)*

**Presenter:** FITSCHEN, Tobias (University of Manchester)

**Session Classification:** EFT

Contribution ID: 29

Type: **not specified**

## **Recent experimental EFT results in the fermionic sector**

*Tuesday, April 8, 2025 9:00 AM (25 minutes)*

**Presenter:** Mrs SHOOSHTARI, Maryam

**Session Classification:** EFT



Contribution ID: **30**

Type: **not specified**

## **Electroweak corrections in the SMEFT**

*Tuesday, April 8, 2025 9:25 AM (25 minutes)*

**Authors:** EL FAHAM, Hesham (UCLouvain and VUB); EL FAHAM, Hesham (The University of Manchester)

**Presenters:** EL FAHAM, Hesham (UCLouvain and VUB); EL FAHAM, Hesham (The University of Manchester)

**Session Classification:** EFT

Contribution ID: **31**

Type: **not specified**

## **Experimental EFT combination**

*Tuesday, April 8, 2025 9:50 AM (25 minutes)*

**Presenter:** ROSSI, Eleonora

**Session Classification:** EFT

Contribution ID: 32

Type: **not specified**

## Precise predictions for ttH production at the LHC

*Monday, April 7, 2025 9:00 AM (25 minutes)*

**Presenter:** SAVOINI, Chiara (TUM)

**Session Classification:** Higgs physics

Contribution ID: 33

Type: **not specified**

## **Advances in ttH/tH (including ttH CP)**

*Monday, April 7, 2025 9:25 AM (25 minutes)*

**Author:** PEZZULLO, Gianonio

**Presenter:** PEZZULLO, Gianonio

**Session Classification:** Higgs physics

Contribution ID: 34

Type: **not specified**

## **Current Multi Higgs Measurements and Projections for the European Strategy Update**

*Monday, April 7, 2025 9:50 AM (25 minutes)*

**Presenter:** BETHANI, Agni

**Session Classification:** Higgs physics

Contribution ID: 35

Type: **not specified**

## **Higgs Boson Production and Decay in Weak Boson Fusion (Remote)**

*Monday, April 7, 2025 10:15 AM (25 minutes)*

**Presenter:** RONTSCH, Raoul (Milan)

**Session Classification:** Higgs physics

Contribution ID: 36

Type: **not specified**

## **Recent Highlights in Differential / STXS Results for Higgs**

*Wednesday, April 9, 2025 9:00 AM (25 minutes)*

**Presenter:** UTTLEY, George

**Session Classification:** Higgs physics

Contribution ID: 37

Type: **not specified**

## Higgs NNLO+PS

*Wednesday, April 9, 2025 9:25 AM (25 minutes)*

**Author:** BIELLO, Christian (MPP Munich)

**Presenter:** BIELLO, Christian (MPP Munich)

**Session Classification:** Higgs physics



Contribution ID: **38**

Type: **not specified**

## **Quark Mass Effects in Higgs Boson Processes**

*Wednesday, April 9, 2025 9:50 AM (25 minutes)*

**Author:** PONCELET, Rene (Cavendish Laboratory Cambridge)

**Presenter:** PONCELET, Rene (Cavendish Laboratory Cambridge)

**Session Classification:** Higgs physics

Contribution ID: 39

Type: **not specified**

# Higgs Measurements using Simulation Based Inference Techniques

*Wednesday, April 9, 2025 10:15 AM (25 minutes)*

**Presenter:** PARK, Tae Hyoun

**Session Classification:** Higgs physics

Contribution ID: 40

Type: **not specified**

## **"Overview of $\alpha_s$ from EECs / TEECs in $e^+e^-$ and $pp$ collisions"**

**Session Classification:** QCD

Contribution ID: 41

Type: **not specified**

## Energy correlators and alpha\_s

*Tuesday, April 8, 2025 10:45 AM (25 minutes)*

**Presenter:** WAALEWIJN, Wouter (University of Amsterdam)

**Session Classification:** QCD

Contribution ID: 42

Type: **not specified**

## Precise Determination of the Strong Coupling Constant from Dijet Cross Sections up to the Multi-TeV Range

*Tuesday, April 8, 2025 11:10 AM (25 minutes)*

We determine the value of the strong coupling  $\alpha_s$  and study its running over a wide range of scales as probed by the dijet production process at hadron colliders. The analysis is performed using the complete next-to-next-to-leading order (NNLO) predictions in perturbative QCD and is based on dijet data published by ATLAS and CMS at center-of-mass energies of 7, 8, and 13 TeV. From a large subset of these data we infer a value of  $\alpha_s(m_Z)=0.1178\pm 0.0022$  for the strong coupling at the scale of the Z-boson mass  $m_Z$ . Complementing the LHC data with dijet cross sections measured at HERA, we extend the range to test the predicted running of the strong coupling towards smaller scales. Our results exhibit excellent agreement with predictions based on the renormalization group equation of QCD. This study represents the a very comprehensive test of the asymptotic behaviour of QCD, spanning over three orders of magnitude in energy scale from 7GeV up to 7TeV. (Work based on arXiv:2412.21165)

**Presenter:** Prof. GWENLAN, Claire (University of Oxford)

**Session Classification:** QCD

Contribution ID: 43

Type: **not specified**

## **"Theoretical progress on jet substructure"**

**Session Classification:** QCD

Contribution ID: 44

Type: **not specified**

## **Measurements on jet substructure at the LHC (ATLAS+CMS)**

*Wednesday, April 9, 2025 2:00 PM (25 minutes)*

**Presenter:** Mr MLINAREVIC, Toni (University College London)

**Session Classification:** QCD

Contribution ID: 45

Type: **not specified**

## **Robust estimates of theoretical uncertainties at fixed-order in perturbation theory**

*Wednesday, April 9, 2025 2:25 PM (25 minutes)*

**Presenter:** Dr LIM, Matthew (University of Milan Bicocca)

**Session Classification:** QCD



Contribution ID: 46

Type: **not specified**

## PDFs for EW precision

*Tuesday, April 8, 2025 3:55 PM (25 minutes)*

Overview of PDFs for EW precision across all groups, including approximate N3LO and theoretical uncertainties amongst other important aspects

**Presenter:** Dr STEGEMAN, Roy (University of Edinburgh)

**Session Classification:** Joint QCD+EW

Contribution ID: 47

Type: **not specified**

## **Perturbative uncertainties on the pTV spectrum**

*Wednesday, April 9, 2025 3:10 PM (30 minutes)*

**Presenter:** Dr MARINELLI, Giulia (DESY)

**Session Classification:** Joint QCD+EW

Contribution ID: 48

Type: **not specified**

## **Precision measurements of W boson production (with a focus on the W boson mass)**

*Wednesday, April 9, 2025 4:00 PM (30 minutes)*

**Presenter:** AIME, Chiara (University of Pisa & INFN Pisa)

**Session Classification:** Joint QCD+EW

Contribution ID: 49

Type: **not specified**

## **Progress on theoretical predictions for Drell-Yan production and prospectives for future precision measurements.**

*Wednesday, April 9, 2025 4:30 PM (30 minutes)*

**Presenter:** Dr BUONOCORE, Luca

**Session Classification:** Joint QCD+EW

Contribution ID: 50

Type: **not specified**

## **Measurements of Higgs boson associate production with a leptonically decaying vector boson in the H to bb/cc decay channel within the ATLAS detector**

*Monday, April 7, 2025 10:40 AM (20 minutes)*

**Author:** D'ANNIBALLE, Gabriele (Pisa)

**Presenter:** D'ANNIBALLE, Gabriele (Pisa)

**Session Classification:** ESR

Contribution ID: 51

Type: **not specified**

## **Overview of ATLAS Forward Proton Detectors: Status, Performance and Physics Results**

*Tuesday, April 8, 2025 11:35 AM (20 minutes)*

**Author:** ARBIOL VAL, Sergio Javier

**Presenter:** ARBIOL VAL, Sergio Javier

**Session Classification:** ESR

Contribution ID: 52

Type: **not specified**

## **Exploring Surprising Non-Perturbative Effects in Drell-Yan plus Jets**

*Tuesday, April 8, 2025 11:55 AM (20 minutes)*

**Author:** HORZELA, Maximilian (Georg-August-Universität Göttingen)

**Presenter:** HORZELA, Maximilian (Georg-August-Universität Göttingen)

**Session Classification:** ESR

Contribution ID: 53

Type: **not specified**

## Compact Two-Loop QCD Corrections for $Vjj$ Production in Proton Collisions

*Tuesday, April 8, 2025 12:15 PM (20 minutes)*

**Author:** DE LAURENTIS, Giuseppe (University of Edinburgh)

**Presenter:** DE LAURENTIS, Giuseppe (University of Edinburgh)

**Session Classification:** ESR



Contribution ID: 55

Type: **not specified**

## **Second Order Corrections to Diphoton Transverse Momentum Distribution at the LHC**

*Tuesday, April 8, 2025 4:45 PM (20 minutes)*

**Author:** FENG, Weijie

**Presenter:** FENG, Weijie

**Session Classification:** ESR

Contribution ID: 56

Type: **not specified**

## **Top-induced NLO electroweak corrections to di-Higgs boson production**

*Wednesday, April 9, 2025 10:40 AM (20 minutes)*

**Author:** Dr BHATTACHARYA, Arunima (IFIC, University of Valencia)

**Presenter:** Dr BHATTACHARYA, Arunima (IFIC, University of Valencia)

**Session Classification:** ESR

Contribution ID: 57

Type: **not specified**

## **Non-perturbative Effects and Uncertainties on the pTV spectrum**

*Tuesday, April 8, 2025 4:20 PM (25 minutes)*

**Presenter:** Dr BERTONE, Valerio (IRFU, Saclay)

**Session Classification:** Joint QCD+EW

Contribution ID: 58

Type: **not specified**

## **Associated production of $tX$ and $tt+X$ , including their EFT interpretation (CMS)**

*Wednesday, April 9, 2025 11:20 AM (20 minutes)*

**Author:** AYLLÓN TORRESANO, Jorge (ICTEA - University of Oviedo)

**Presenter:** AYLLÓN TORRESANO, Jorge (ICTEA - University of Oviedo)

**Session Classification:** Top

Contribution ID: 59

Type: **not specified**

## **Associated production of $t\bar{X}$ and $t t + X$ , including their EFT interpretation (ATLAS)**

*Wednesday, April 9, 2025 11:40 AM (20 minutes)*

**Author:** YARDLEY, Caley (University of Sussex)

**Presenter:** YARDLEY, Caley (University of Sussex)

**Session Classification:** Top

Contribution ID: **60**

Type: **not specified**

## **Advances in resummed calculations for top-antitop and top-antitop+V production at the LHC**

*Wednesday, April 9, 2025 12:00 PM (25 minutes)*

**Author:** BROGGIO, Alessandro

**Presenter:** BROGGIO, Alessandro

**Session Classification:** Top

Contribution ID: 61

Type: **not specified**

## **Energy Correlators and Precision Top Mass Determination**

*Wednesday, April 9, 2025 12:25 PM (25 minutes)*

**Author:** PATHAK, Aditya (DESY)

**Presenter:** PATHAK, Aditya (DESY)

**Session Classification:** Top

Contribution ID: **62**

Type: **not specified**

## **FCNC and properties in top physics (ATLAS+CMS)**

*Thursday, April 10, 2025 9:00 AM (30 minutes)*

**Author:** CERRITO, Lucio (University of Rome Tor Vergata)

**Presenter:** CERRITO, Lucio (University of Rome Tor Vergata)

**Session Classification:** Top



Contribution ID: 63

Type: **not specified**

## **Experimental studies of the top quark pair production threshold (CMS)**

*Thursday, April 10, 2025 9:30 AM (30 minutes)*

**Author:** SCHWANENBERGER, Christian

**Presenter:** SCHWANENBERGER, Christian

**Session Classification:** Top

Contribution ID: 64

Type: **not specified**

## **Theory predictions for "toponium" at the LHC: present status and open issues**

*Thursday, April 10, 2025 10:00 AM (30 minutes)*

**Author:** GARZELLI, Maria Vittoria

**Presenter:** GARZELLI, Maria Vittoria

**Session Classification:** Top

Contribution ID: 65

Type: **ESR Talk**

## **Loop Integrals Numerical Evaluation with LINE**

*Monday, April 7, 2025 4:10 PM (20 minutes)*

**Author:** PRISCO, Renato Maria (University of Naples Federico II & INFN - Naples)

**Presenter:** PRISCO, Renato Maria (University of Naples Federico II & INFN - Naples)

**Session Classification:** ESR

Contribution ID: 66

Type: **ESR Talk**

## **Progress on two-loop Feynman integrals for $ttW$ production**

*Thursday, April 10, 2025 10:30 AM (20 minutes)*

**Author:** CANKO, Dhimiter (Università di Bologna)

**Presenter:** CANKO, Dhimiter (Università di Bologna)

**Session Classification:** ESR

Contribution ID: 67

Type: **ESR Talk**

## **Three-Loop master integrals for the production of two off-shell vector bosons with different masses**

*Wednesday, April 9, 2025 2:50 PM (20 minutes)*

**Author:** POZZOLI, Mattia (University and INFN Bologna)

**Presenter:** POZZOLI, Mattia (University and INFN Bologna)

**Session Classification:** ESR