

# Mathieu Pellen

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Date and place of birth: 4<sup>th</sup> of June 1987 in Brest, France  
Nationality, Gender, Status: French, Male, Married with one child  
Languages: French (native), English (fluent), German (fluent)

## Research Positions

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- 10/20 - present Senior Postdoctoral researcher / Habilitation track of German universities  
Physics Institute, University of Freiburg (Germany)
- 10/18 - 09/20 Research associate  
Cavendish laboratory, University of Cambridge (United Kingdom)
- 10/15 - 09/18 Postdoctoral researcher  
Institute for Theoretical Physics und Astrophysics, University of Würzburg (Germany)
- 10/11 - 09/15 PhD student  
*Precision Calculations for Physics Beyond the Standard Model*,  
Supervisor: Michael Krämer - RWTH Aachen (Germany)
- 03 - 08/11 Master student  
*Energy and momentum conservation rules for the intersection of branes*  
Supervisor: David Wands - ICG, University of Portsmouth (United Kingdom)
- 06 - 08/10 Bachelor student  
*Modelling proton-proton collisions at the LHC*  
Supervisor: Arthur Moraes - University of Glasgow (United Kingdom)
- 07 - 08/09 Summer student  
*Calculations for Coupling of a SQUID with a coplanar resonant line*  
Supervisor: Olivier Buisson - Institut Néel (CNRS), Grenoble (France)

## Education

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- 10/11 - 06/15 PhD in natural science  
Institute for Theoretical Particle Physics and Cosmology,  
RWTH Aachen University (Germany)
- 09/10 - 09/11 International Master in Subatomic and Astroparticle Physics  
Joseph Fourier University / LPSC (CNRS), Grenoble (France)
- 09/08 - 09/11 Master in Physics and Nanoscience  
Grenoble Institute of Technology (France)
- 09/05 - 09/08 Classe préparatoire aux Grandes écoles (equivalent to first and second year of university)  
Lycée de Kérichen, Brest (France)

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Parental leave: 2 months in years 2021-2022

36 journal articles, 21 proceedings or community reports, >1900 citations, h-index: 26

### Articles:

- [1] CMS , A. Tumasyan *et. al.*, *Measurement of the production cross section for a  $W$  boson in association with a charm quark in proton–proton collisions at  $\sqrt{s} = 13$  TeV*, *Eur. Phys. J. C* **84** (2024), no. 1 27 [2308.02285].
- [2] M. Grossi, M. Incudini, M. Pellen and G. Pelliccioli, *Amplitude-assisted tagging of longitudinally polarised bosons using wide neural networks*, *Eur. Phys. J. C* **83** (2023), no. 8 759 [2306.07726].
- [3] H. A. Chawdhry and M. Pellen, *Quantum simulation of colour in perturbative quantum chromodynamics*, *SciPost Phys.* **15** (2023) 205 [2303.04818].
- [4] A. Denner, M. Pellen and G. Pelliccioli, *NLO QCD corrections to off-shell top–antitop production with semi-leptonic decays at lepton colliders*, *Eur. Phys. J. C* **83** (2023), no. 5 353 [2302.04188].
- [5] M. Czakon, A. Mitov, M. Pellen and R. Poncelet, *A detailed investigation of  $W+c$ -jet at the LHC*, *JHEP* **02** (2023) 241 [2212.00467].
- [6] A. Huss, J. Huston, S. Jones and M. Pellen, *Les Houches 2021—physics at TeV colliders: report on the standard model precision wishlist*, *J. Phys. G* **50** (2023), no. 4 043001 [2207.02122].
- [7] M. Pellen, R. Poncelet, A. Popescu and T. Vitos, *Angular coefficients in  $W + j$  production at the LHC with high precision*, *Eur. Phys. J. C* **82** (2022), no. 8 693 [2204.12394].
- [8] G. Agliardi, M. Grossi, M. Pellen and E. Prati, *Quantum integration of elementary particle processes*, *Phys. Lett. B* **832** (2022) 137228 [2201.01547].
- [9] M. Pellen, R. Poncelet and A. Popescu, *Polarised  $W+j$  production at the LHC: a study at NNLO QCD accuracy*, *JHEP* **02** (2022) 160 [2109.14336].
- [10] A. Denner, R. Franken, M. Pellen and T. Schmidt, *Full NLO predictions for vector-boson scattering into  $Z$  bosons and its irreducible background at the LHC*, *JHEP* **10** (2021) 228 [2107.10688].
- [11] R. Covarelli, M. Pellen and M. Zaro, *Vector-Boson scattering at the LHC: Unraveling the electroweak sector*, *Int. J. Mod. Phys. A* **36** (2021), no. 16 2130009 [2102.10991].
- [12] M. Czakon, A. Mitov, M. Pellen and R. Poncelet, *NNLO QCD predictions for  $W+c$ -jet production at the LHC*, *JHEP* **06** (2021) 100 [2011.01011].
- [13] A. Denner, R. Franken, M. Pellen and T. Schmidt, *NLO QCD and EW corrections to vector-boson scattering into  $ZZ$  at the LHC*, *JHEP* **11** (2020) 110 [2009.00411].
- [14] A. Denner, J.-N. Lang and M. Pellen, *Full NLO QCD corrections to off-shell  $t\bar{t}b\bar{b}$  production*, *Phys. Rev. D* **104** (2021), no. 5 056018 [2008.00918].
- [15] F. A. Dreyer, A. Karlberg, J.-N. Lang and M. Pellen, *Precise predictions for double-Higgs production via vector-boson fusion*, *Eur. Phys. J.* **C80** (2020), no. 11 1037 [2005.13341].
- [16] S. Bräuer, A. Denner, M. Pellen, M. Schönherr and S. Schumann, *Fixed-order and merged parton-shower predictions for  $WW$  and  $WWj$  production at the LHC including NLO QCD and EW corrections*, *JHEP* **10** (2020) 159 [2005.12128].
- [17] M. Pellen, *Exploring the scattering of vector bosons at LHCb*, *Phys. Rev.* **D101** (2020), no. 1 013002 [1908.06805].
- [18] A. Denner, S. Dittmaier, M. Pellen and C. Schwan, *Low-virtuality photon transitions  $\gamma^* \rightarrow f\bar{f}$  and the photon-to-jet conversion function*, *Phys. Lett. B* **798** (2019) 134951 [1907.02366].
- [19] M. Chiesa, A. Denner, J.-N. Lang and M. Pellen, *An event generator for same-sign  $W$ -boson scattering at the LHC including electroweak corrections*, *Eur. Phys. J.* **C79** (2019), no. 9 788 [1906.01863].
- [20] A. Denner, S. Dittmaier, P. Maierhöfer, M. Pellen and C. Schwan, *QCD and electroweak corrections to  $WZ$  scattering at the LHC*, *JHEP* **06** (2019) 067 [1904.00882].
- [21] L. Di Menza, J.-P. Nicolas and M. Pellen, *A new type of charged black hole bomb*, *Gen. Rel. Grav.* **52** (2020), no. 1 8 [1903.02941].

- [22] A. Ballestrero *et al.*, *Precise predictions for same-sign  $W$ -boson scattering at the LHC*, *Eur. Phys. J.* **C78** (2018), no. 8 671 [1803.07943].
- [23] A. Denner and M. Pellen, *Off-shell production of top-antitop pairs in the lepton+jets channel at NLO QCD*, *JHEP* **02** (2018) 013 [1711.10359].
- [24] B. Biedermann, A. Denner and M. Pellen, *Complete NLO corrections to  $W^+W^+$  scattering and its irreducible background at the LHC*, *JHEP* **10** (2017) 124 [1708.00268].
- [25] B. Biedermann, S. Bräuer, A. Denner, M. Pellen, S. Schumann and J. M. Thompson, *Automation of NLO QCD and EW corrections with Sherpa and Recola*, *Eur. Phys. J.* **C77** (2017) 492 [1704.05783].
- [26] A. Denner, J.-N. Lang, M. Pellen and S. Uccirati, *Higgs production in association with off-shell top-antitop pairs at NLO EW and QCD at the LHC*, *JHEP* **02** (2017) 053 [1612.07138].
- [27] L. Ali Cavazonza, H. Gast, M. Krämer, M. Pellen and S. Schael, *Constraints on leptophilic dark matter from the AMS-02 experiment*, *Astrophys. J.* **839** (2017), no. 1 36 [1612.06634].
- [28] B. Biedermann, A. Denner and M. Pellen, *Large electroweak corrections to vector-boson scattering at the Large Hadron Collider*, *Phys. Rev. Lett.* **118** (2017), no. 26 261801 [1611.02951].
- [29] A. Denner and M. Pellen, *NLO electroweak corrections to off-shell top-antitop production with leptonic decays at the LHC*, *JHEP* **08** (2016) 155 [1607.05571].
- [30] C. Arina, M. Backović, E. Conte, B. Fuks, J. Guo, J. Heisig, B. Hespel, M. Krämer, F. Maltoni, A. Martini, K. Mawatari, M. Pellen and E. Vryonidou, *A comprehensive approach to dark matter studies: exploration of simplified top-philic models*, *JHEP* **11** (2016) 111 [1605.09242].
- [31] J. Heisig, M. Krämer, M. Pellen and C. Wiebusch, *Constraints on Majorana Dark Matter from the LHC and IceCube*, *Phys. Rev.* **D93** (2016), no. 5 055029 [1509.07867].
- [32] M. Backović, M. Krämer, F. Maltoni, A. Martini, K. Mawatari and M. Pellen, *Higher-order QCD predictions for dark matter production at the LHC in simplified models with  $s$ -channel mediators*, *Eur. Phys. J.* **C75** (2015), no. 10 482 [1508.05327].
- [33] L. Ali Cavazonza, M. Krämer and M. Pellen, *Electroweak fragmentation functions for dark matter annihilation*, *JCAP* **1502** (2015), no. 02 021 [1409.8226].
- [34] R. Gavin, C. Hangst, M. Krämer, M. Mühlleitner, M. Pellen, E. Popena and M. Spira, *Squark Production and Decay matched with Parton Showers at NLO*, *Eur. Phys. J.* **C75** (2015), no. 1 29 [1407.7971].
- [35] M. Pellen, *Conservation laws for colliding branes with induced gravity*, *Astrophys. Space Sci.* **357** (2015), no. 1 24 [1309.6750].
- [36] R. Gavin, C. Hangst, M. Krämer, M. Mühlleitner, M. Pellen, E. Popena and M. Spira, *Matching Squark Pair Production at NLO with Parton Showers*, *JHEP* **10** (2013) 187 [1305.4061].

### Proceedings and Reports:

- [1] H. A. Chawdhry and M. Pellen, *Quantum algorithms for the simulation of perturbative QCD processes*, PoS **RADCOR2023** (2023), 087 [arXiv:2309.06182 [hep-ph]].
- [2] F. Maltoni, *et al.* *TF07 Snowmass Report: Theory of Collider Phenomena*, [arXiv:2210.02591 [hep-ph]].
- [3] J. M. Campbell, *et al.* *Event Generators for High-Energy Physics Experiments*, [arXiv:2203.11110 [hep-ph]].
- [4] M. Czakon, A. Mitov, M. Pellen and R. Poncelet,  *$W+c$ -jet production at the LHC with NNLO QCD accuracy*, *SciPost Phys. Proc.* **7** (2022), 035 [arXiv:2110.05104 [hep-ph]].
- [5] D. Buarque, *et al.* *Vector Boson Scattering Processes: Status and Prospects*, [arXiv:2106.01393 [hep-ph]].
- [6] M. Pellen, *Vector bosons and jets at the LHC*, PoS **LHCP2020** (2021), 141 [arXiv:2009.12236 [hep-ph]].
- [7] J. Baglio *et al.*, *VBSCan Mid-Term Scientific Meeting*, [arXiv:2004.00726 [hep-ph]].
- [8] S. Amoroso *et al.*, *Les Houches 2019: Physics at TeV Colliders: Standard Model Working Group Report*, [arXiv:2003.01700 [hep-ph]].
- [9] A. Denner, J.-N. Lang, M. Pellen and S. Uccirati, *NLO QCD + electroweak predictions for off-shell  $t\bar{t}H$  production at the LHC*, [arXiv:1912.08493 [hep-ph]].

- [10] R. Bellan *et al.*, *VBSCan Thessaloniki 2018 Workshop Summary*, [arXiv:1906.11332 [hep-ph]].
- [11] P. Azzi *et al.*, *Standard Model Physics at the HL-LHC and HE-LHC*, [arXiv:1902.04070 [hep-ph]].
- [12] J. R. Andersen *et al.*, *Les Houches 2017: Physics at TeV Colliders Standard Model Working Group Report*, [arXiv:1803.07977 [hep-ph]].
- [13] C. F. Anders *et al.*, *Vector boson scattering: Recent experimental and theory developments*, *Rev. Phys.* **3**, 44 (2018) [arXiv:1801.04203 [hep-ph]].
- [14] A. Denner, J.-N. Lang, M. Pellen and S. Uccirati, *NLO QCD and EW corrections to processes involving off-shell top quarks*, *PoS RADCOR 2017*, 060 (2017) [arXiv:1711.08910 [hep-ph]].
- [15] B. Biedermann, A. Denner and M. Pellen, *Electroweak corrections to vector-boson scattering*, *PoS RADCOR 2017*, 072 (2017) [arXiv:1711.02932 [hep-ph]].
- [16] M. Pellen, *Automated computations of electroweak corrections using Sherpa+Recola*, 29th Rencontres de Blois on Particle Physics and Cosmology Blois, France, May 28-June 2, 2017 [arXiv:1709.05791 [hep-ph]].
- [17] B. Biedermann, A. Denner and M. Pellen, *NLO electroweak corrections to vector-boson scattering at the LHC*, *PoS DIS 2017*, 164 (2018) [arXiv:1708.00646 [hep-ph]].
- [18] L. Ali Cavazonza, M. Krämer and M. Pellen, *Exploring dark matter with AMS-02 through Electroweak Corrections*, 11th Patras Workshop on Axions, WIMPs and WISPs (Axion-WIMP 2015): Zaragoza, Spain, June 22-26, 2015
- [19] J. Heisig and M. Pellen, *dark matter at the LHC and IceCube - a Simplified Model Interpretation*, Proceedings, 11th Patras Workshop on Axions, WIMPs and WISPs: Zaragoza, Spain, June 22-26, 2015 [arXiv:1509.08640 [hep-ph]].
- [20] R. Gavin, C. Hangst, M. Krämer, M. Mühlleitner, M. Pellen, E. Popena and M. Spira, *Squark Production and Decay at NLO matched with Parton Showers*, *PoS DIS 2014*, 125 (2014).
- [21] L. Ali Cavazonza, M. Krämer and M. Pellen, *Electroweak fragmentation functions for dark matter annihilation*, 10th Patras Workshop on Axions, WIMPs and WISPs: Geneva, Switzerland, June 29-July 4, 2014

## Teaching - Supervision

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- 2023-24 **Lecturer** *QCD and collider physics* - University of Freiburg, Germany  
→ Alternating between lecture and exercise classes
- 2023 **Senior assistant** *Quantum Mechanics* (in German) - University of Freiburg, Germany  
→ Organiser of tutorials and designing of exercise sheets/exam
- 2022-23 **Teaching assistant** *Mathematics II* (in German) - University of Freiburg, Germany  
→ Exercise classes
- 2022 **Senior assistant** *Mathematics I* (in German) - University of Freiburg, Germany  
→ Organiser of tutorials and designing of exercise sheets/exam
- 2021-22 **Senior assistant** *Mathematics II* (in German) - University of Freiburg, Germany  
→ Co-organiser of tutorials and designing of exercise sheets/exam
- 2021 **Senior assistant** *Classical Mechanics* (in German) - University of Freiburg, Germany  
→ Co-organiser of tutorials and designing of exercise sheets/exam
- 2020-21 **Senior assistant** *Classical Electrodynamics* (in German) - University of Freiburg, Germany  
→ Co-organiser of tutorials and designing of exercise sheets/exam
- 04/2019 **Lecturer** *Standard model, higher orders, and VBF/VBS* - University of Pavia, Italy  
→ PhD programme (10 hours)
- 04/2018 **Lecturer** *Introduction to electroweak corrections*  
→ *First EW SB spring school* (3 hours) - Maratea, Italy
- 2018 **Teaching assistant** *Classical Electrodynamics* (in German) - University of Würzburg, Germany  
→ Exercise classes and designing of exercise sheets

- 2017-18 **Teaching assistant** *Advanced Quantum Field Theory* - University of Würzburg, Germany  
→ Exercise classes and designing of exercise sheets
- 2015 **Teaching assistant** *Classical Mechanics* (in German) - RWTH Aachen, Germany  
→ Exercise classes and corrections of students' sheets
- 2014 **Teaching assistant** *Quantum Mechanics* - RWTH Aachen, Germany  
→ Exercise classes and corrections of students' sheets
- 2012-13 **Teaching assistant** *Classical Electrodynamics* - RWTH Aachen, Germany  
→ Exercise classes and corrections of students' sheets
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- 2023-present **Supervision** of a PhD student - University of Freiburg, Germany  
→ *Higher-order EW corrections and parton-shower*
- 2023 **Co-supervision** of a Master student - University of Freiburg, Germany  
→ *Electroweak corrections in Drell-Yan*
- 2023-present **Co-supervision** of a PhD student - University of Freiburg, Germany  
→ *Higher-order corrections for tau decays*
- 2021-22 **Co-supervision** of a Master student - University of Freiburg, Germany  
→ *Higher-order corrections for tau decays*
- 2019-20 **Co-supervision** of a PhD student - University of Cambridge, United Kingdom  
→ *Higher-order corrections in QCD*
- 2014-15 **Co-supervision** of two Master students - RWTH Aachen, Germany  
→ *Indirect Dark-Matter detection*
- 2013 **Supervision** of two Bachelor students for their thesis - RWTH Aachen, Germany  
→ *Supersymmetric quantum mechanics*  
→ *Two Higgs doublet model*
- 2012 **Supervision** of two Master students for literature seminar - RWTH Aachen, Germany  
→ *Extra dimension models*

## Leadership - Scientific Management

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- 2021-now **Convener** of the VBF sub-group in LHC Higgs Working Group
- 2017-2021 **Working-group leader** of the VBSCan COST network (EU funded)
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- 2024 **Convener** of Higgs, electroweak, BSM physics session, *QCD@LHC* - Freiburg (Germany)
- 2023 **Convener** of phenomenology session, *DESY Theory Workshop* - Hamburg (Germany)
- 2023 **Convener**, *Les Houches workshop 2023: Physics at TeV Colliders*, Les Houches (France)
- 2022 **Organiser and chair** of *Past, present, and future of VBF* workshop - CERN (Switzerland)
- 2022 **Convener** of phenomenology session, *DESY Theory Workshop* - Hamburg (Germany)
- 2022 **Convener** of the EW session at *LHCP 2022* - Taipei (Taiwan)
- 2021 **Session chair**, *MBI conference 2021*, Milan (Italy)
- 2021 **Group coordinator**, *Fall school for HEP: Maria Laach*, Bad Honnef (Germany)
- 2021 **Convener**, *Les Houches workshop 2021: Physics at TeV Colliders*, Les Houches (France)
- 2021 **Session Chair**, *DPG Meeting* - QCD and electroweak interactions, Dortmund (Germany)
- 2020 **Organiser**, *Workshop on Effective Field Theory in Polarised VBS*, online
- 2019 **Convener** of the EW session at *LHCP 2019* - Puebla (Mexico)
- 2017-2019 **Programme organiser and chair**, VBSCan meetings: Split (Croatia) [2017], Thessaloniki (Greece) [2018], CERN (Switzerland) [2018], Ljubljana (Slovenia) [2019], Istanbul (Turkey) [2019] (programme organiser only), Helsinki (Finland) [2020]

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2017-now	<b>Referee</b> for CPC, EPJC, JHEP, and PRD
2020	<b>Editor</b> , <i>VBSCan Mid-Term Scientific Meeting: proceedings</i> [2004.00726]
2019	<b>Editor</b> , <i>VBSCan Thessaloniki 2018 Workshop: proceedings</i> [1906.11332]
2018	<b>Editor</b> , <i>Vector-boson scattering: Recent experimental and theory developments</i> [1801.04203]
2017	<b>Section coordinator</b> , <i>Les Houches workshop 2017 Standard-Model report</i> [1803.07977]

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2021-2024	<b>Representative</b> of postdoctoral researchers in graduate school (University of Freiburg)
2019	<b>Member of Scientific Committee</b> of international workshop <i>BSM models in Vector-Boson Scattering processes</i> – Lisbon (Portugal)
2018-20	<b>Representative</b> of the United Kingdom in VBSCAN COST network (EU funded)
2017-18	<b>Representative</b> of Germany in VBSCAN COST network (EU funded)

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2021-22	<b>Organiser</b> of bi-weekly graduate-school seminar (University of Freiburg)
2020-2022	<b>Organiser</b> of bi-weekly student research seminar (University of Freiburg)
2018-20	<b>Organiser</b> of weekly institute seminar (University of Cambridge)
2015-18	<b>Organiser</b> of weekly institute seminar (University of Würzburg)
2020-now	<b>Mentor</b> of 6 PhD students (University of Freiburg)

## Funding

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2023	<b>PhD position</b> from DFG - 200k Euros. Three years, co-Pi with Stefan Dittmaier.
06/2020	Step 2 of the <b>ERC Starting Grant 2020</b> call (ERC-2020-StG). Not funded.
11/2019	<b>Travel grant</b> from COST EU agency - 0.8k Euros. One-week visit at University of Würzburg, Germany.
03/2017	<b>Travel grant</b> from COST EU agency - 1k Euros. One-week visit at Nikhef - Amsterdam, Netherlands.
03/2011	<b>Mobility grant</b> Explo'RA, Rhone-Alpes region - 2k Euros. Six-months project at University of Portsmouth, United Kingdom.
07/2010	<b>Summer Studentship</b> Scheme, University of Glasgow - 1k Pounds. Three-months project at University of Glasgow, United Kingdom.

## Invited Presentations

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45 invited presentations (listed below) + 33 additional presentations at international conferences and workshops.

04/2024	<i>Theoretical advances in EW/Higgs/Top physics at the LHC</i> , <b>Plenary</b> , DIS2024, Grenoble (France).
01/2024	<i>Quantum computing for high-energy physics simulations</i> , <b>Seminar</b> , University of Milan (Italy).
01/2024	<i>Quantum computing for high-energy physics simulations</i> , <b>Seminar</b> , IPHC, Strasbourg (France).
12/2023	<i>Theory input for the measurement of <math>W+c</math> production at the LHC</i> , <b>Seminar</b> , Florida State University (USA).
09/2023	<i>Vector boson plus heavy flavour at the LHC</i> , <b>Plenary</b> , QCD@LHC, Durham (United Kingdom).

- 08/2023 *The polarisation of weak bosons: precision and new ideas for the LHC*,  
**Seminar**, University of Bern (Switzerland).
- 06/2023 *Theory predictions for top-pair production at collider experiments*,  
**Seminar**, University of Vienna (Austria).
- 03/2023 *Theoretical precision in  $W+c$  production at the LHC*,  
2<sup>nd</sup> CMS Workshop on V+jets Physics, CERN, Geneva (Switzerland).
- 02/2023 *Precision in  $W+c$  production at the LHC*,  
**Seminar**, MPI Munich (Germany).
- 09/2022 *Theoretical advancements in VBS processes*,  
CMS Italia VBS meeting, CERN, Geneva (Switzerland).
- 08/2022 *Quantum integration of elementary particle processes*,  
MIAPP workshop, Munich (Germany).
- 08/2022 *NLO EW Overview for Multi-bosons and VBS at LHCb*,  
**Plenary**, MBI 2022, Shanghai (China).
- 05/2022 *NLO EW in diboson and VBS*,  
CMS multiboson workshop, CERN, Geneva (Switzerland).
- 04/2022 *Precision calculations for multiboson production and VBS*,  
**Plenary**, SM@LHC, CERN, Geneva (Switzerland).
- 03/2022 *Polarisation in  $W$ +jets*,  
1<sup>st</sup> CMS Workshop on V+jets Physics, CERN, Geneva (Switzerland).
- 01/2022 *New physics opportunities for  $W$ +jet at the LHC*,  
**Seminar**, University of Würzburg (Germany).
- 09/2021 *Precise predictions for di-Higgs VBF production*,  
**Plenary**, Higgs Hunting 2021, Paris (France).
- 06/2021 *EW corrections for SM processes*,  
Physics at TeV Colliders 2021, Les Houches (France).
- 05/2021 *Fixed-order and merged parton-shower predictions for  $WW$  and  $WWj$  production at the LHC including NLO QCD and EW corrections*, LHC EW working group, CERN (Switzerland).
- 04/2021 *Vector-boson scattering at the LHC: unravelling the Electroweak sector*,  
**Seminar**, University of Freiburg (Germany).
- 03/2021 *Stress testing the Standard Model via vector-boson scattering at the LHC*,  
DPG Meeting, Dortmund (Germany) - **invited topical talk**.
- 12/2020 *Theoretical predictions for Higgs measurements at the LHC*,  
**Seminar**, Heidelberg (Germany).
- 11/2020 *Full NLO QCD corrections to off-shell  $t\bar{t}b\bar{b}$  production*,  
**Seminar**, RWTH Aachen (Germany).
- 10/2020 *Multi-particle final states at 1-loop EW*,  
CEPC workshop, Shanghai (China).
- 07/2020 *Precise predictions for double-Higgs production via vector-boson fusion*,  
LHC-HH Subgroup Meeting (online).
- 05/2020 *Vector bosons plus jets at the LHC*,  
LHCP2020, Paris (France).
- 05/2020 *Theoretical predictions for processes with many legs at the LHC*,  
**Seminar**, Milan (Italy).

- 01/2020 *Off-shell effects in  $tt$  and  $ttH$  production*,  
**Plenary**, ZPW2020, Zurich (Switzerland).
- 11/2019 *Theoretical predictions for processes with many legs at the LHC*,  
**Seminar**, Nikhef (Netherlands).
- 09/2019 *Theoretical predictions for  $ttH$  production - NLO QCD + NLO EW*,  
**Plenary**, TOP2019, Beijing (China).
- 09/2019 *What can we do better: Precision electroweak*,  
**Plenary**, ATLAS Standard-Model workshop, Belgrade (Serbia).
- 02/2019 *Theory predictions for vector-boson scattering at the LHC*,  
**Seminar**, IPPP Durham (United Kingdom).
- 10/2018 *Vector-boson scattering at the LHC*,  
**Seminar**, University of Cambridge (United Kingdom).
- 09/2018 *Production of top quark pairs at the LHC: NLO corrections and off-shell effects*,  
**Seminar**, University of Zurich (Switzerland).
- 08/2018 *Theory input for VBS*,  
QCD@LHC, Dresden (Germany).
- 07/2018 *Top quark at the LHC: NLO corrections and off-shell effects*,  
**Seminar**, Desy Hamburg (Germany).
- 04/2018 *Theory developments in VBS simulations*,  
**Plenary**, SM@LHC, Berlin (Germany).
- 03/2018 *Vector-boson scattering at the LHC*,  
**Seminar**, University of Cambridge (United Kingdom).
- 02/2018 *High-precision description of VBS at the LHC*,  
CMS meeting, CERN (Switzerland).
- 01/2018 *NLO corrections for processes involving off-shell top quarks*,  
**Seminar**, Freiburg (Germany).
- 08/2017 *Status of EW NLO corrections for multi-boson processes*,  
**Plenary**, MBI 2017, KIT / Karlsruhe (Germany).
- 05/2017 *Automatised computations of EW corrections using Sherpa+Recola*,  
Rencontres de Blois 2017, Blois (France).
- 05/2017 *NLO EW corrections for processes involving off-shell top quarks*,  
**Seminar**, Göttingen University (Germany).
- 04/2017 *Higgs production in association with off-shell top-antitop pairs at NLO EW and QCD*,  
CMS generator meeting, CERN - Geneva, (Switzerland).
- 03/2017 *NLO electroweak corrections to off-shell top-antitop production with leptonic decays at the LHC*,  
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- 01/2015 *NLO accuracy for Supersymmetric processes at the LHC*,  
**Seminar** - Würzburg University (Germany).
- 03/2013 *Basics of AdS / CFT correspondence*,  
**Seminar** - Department of Mathematics - University of Brest (France).



## Referees

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