

Curriculum Vitae

Name	Dr. Roman Pöschl
Birthday	28.5.1969
Professional Address	Laboratoire de Physique des 2 Infinis Irène Joliot-Curie (IJCLab)/ Université Paris-Saclay 15 rue Georges Clemenceau F-91405 Orsay
E-Mail	roman.poeschl@ijclab.in2p3.fr
Phone	+33-164-46-8469

Diplomae and parcours

April 1996	Diploma in Physics University of Dortmund and DESY/Hamburg.
Mai 1996 – Oct. 2000	PhD Thesis Supervisor: Prof. Dr. D. Wegener University of Dortmund and DESY/Hamburg. Thesis title: <i>Measurement of the Double Differential Dijet Rate in Deep Inelastic Scattering at HERA and Comparison to NLO-QCD Calculations</i>
Dec. 2000 – March 2003	Postdoc at Laboratoire de l'Accélérateur Linéaire (LAL) at Orsay Member of H1 Group of LAL
April 2003 – Jan. 2006	DESY Fellow Member of the collaborations E166 and CALICE
Feb. 2006 – Sept. 2011	Postdoc at LAL
February 2010	Habilitation Université Paris XI and LAL Orsay
October 2011	Recruited by CNRS as Directeur de Recherche Niveau 2 Assigned to LAL Orsay (IJCLab since January 2020)
October 2022	Promoted to Directeur de Recherche Niveau 1 of CNRS

1 Scientific research

Since the beginning of my career I based my scientific work on two pillars, physics studies and instrumentation. Concerning instrumentation I worked on different types of calorimeters throughout my whole career. In fact my diploma thesis and a large part of my PhD thesis dealt with the H1 backward calorimeter SpaCal where I worked for example on the position resolution and the LED Calibration system. The latter in my position as the responsible of the software of the SpaCal. My dijet analysis carried out with H1 data and the fact that I worked in a group that built part of the H1 Liquid Argon Calorimeter allowed me to gain at least some basic knowledge on the functioning of this type of calorimeter. During my term as DESY Fellow I was member of the E166 Collaboration, a SLAC Experiment that delivered the proof-of-principle of polarised positron production with an helical undulator. The DESY Group was in charge of the polarimetry. The end of the polarimetry chain was a CsI(Tl) Calorimeter. The calorimeter blocks were almost identical to those used in the BaBar and the Belle (II) experiments. I contributed to the commissioning of the calorimeter in beam tests and finally at SLAC as well as to the data analysis of the E166 Experiment. During the term as DESY Fellow I also worked for the Scintillating Tile Calorimeter also known as CALICE AHCAL. This was my first experience with highly-granular calorimeters. Since my employment by CNRS I worked mainly for the highly-granular silicon tungsten calorimeter. This work includes prototype construction, conduction of beam tests in responsible position and the corresponding data analysis. My different positions within CALICE including that of the Chair of the Technical Board and as the Spokesperson allowed me to follow closely also the developments of the other calorimeters that were developed in CALICE.

Excellent detectors yield excellent physics. I already mentioned that during my PhD thesis I studied dijet production in deep inelastic ep scattering using data recorded by H1 at HERA. In the last 10-15 years I concentrated on the evaluation of the physics potential at future e^+e^- colliders with strong emphasis on the International Linear Collider. I started with supervising a PhD thesis on Higgs-strahlung. Further studies comprised diquark production with polarised beams, ranging from top-pair production down to light quark production.

2 Motivation to become Spokesperson of the DRD-on-Calorimetry

As can be told I from the previous section have worked with different types of calorimeters throughout my scientific life. Many of these are also part of the portfolio of the DRD-on-Calorimetry. Further I served in several responsible positions in CALICE and in international review panels. It's also fair to say that I have played a visible role in the establishment of the ECFA Detector R&D Roadmap and the formation of the DRD-on-Calorimetry, officially in place since January 1st 2024. I think that this is a solid background to also take on the responsibility of the Spokesperson of the DRD-on-Calorimetry.

The DRD-on-Calorimetry will work on technologies supposed to be proposed for future particle physics experiments of small, medium and large size. The goal of the DRD is that all proposals achieve a similar level of maturity to give informed input to technology decisions by future experiments. Helping on the implementation of this guiding principle

is the main duty of a Spokesperson. The current set of projects are a start. On the other hand openness should be one of the pillars of the collaboration and an important task will be making sure that new ideas find their place in the collaboration. Collaboration means mutual help and robust frameworks and procedures in which the R&D can flourish. Spokesperson means also representing the collaboration in panels and making sure that the interests of the collaboration are met. The basis for this representation is an active communication within the collaboration. In this sense the collaboration management that will include also at least one Deputy Spokesperson should act as a team bringing the voice of the collaboration to the “Speaker”.

The DRD-on-Calorimetry should become a home to all of its members. Special importance will be given to early career researchers (ECR). I would like to continue the “CALICE Tradition” and establish an ECR Forum in which early career researchers can debate on their role in the collaboration. As Spokesperson I would have an open ear to their needs and would take care that membership in the DRD-on-Calorimetry becomes a career opportunity for young researchers. This spans from talks at conferences to responsibilities at different stages of the R&D Programme

I consider gender balance and diversity as an asset for the success of the collaboration and the policy of the collaboration should pay special attention to this. Their importance and how gender balance and diversity will be implemented in the collaboration should be stated explicitly in the collaboration rules. As first measure I would propose to sign the ECFA Diversity Charter and siblings in other regions of the world.

Let me finish by saying that my motivation to present myself in the election of the Spokesperson is also based on the excellent experience I made during the different steps toward the forming of the collaboration. It was a pleasure to see how partially different backgrounds could be harmonised into a sound proposal for the DRD. Let me take the opportunity to thank all those who supported this way up to here.

Being a Spokesperson means serving and it would be a great honour for me to serve as the first Spokesperson of the DRD-on-Calorimetry.

3 Publication list

Beyond the papers cited below for which I made major contributions. I am co-author of 84 publications of the H1 Collaboration and 35 publications of the CALICE Collaboration. For all these publications I am qualified as an author through technical work or critical reading of the manuscripts, partially as member of the collaboration internal editorial boards.

Publications in peer-reviewed journals

- [1] **H1 SPACAL Group**, T. Nicholls *et al.*, “Performance of an electromagnetic lead / scintillating fiber calorimeter for the H1 detector” *Nucl. Instrum. Meth.* **A374** (1996) 149–156.
- [2] **H1 Collaboration**, A. Aktas *et al.*, “Inclusive dijet production at low Bjorken x in deep inelastic scattering” *Eur. Phys. J.* **C33** (2004) 477–493, [arXiv:hep-ex/0310019 \[hep-ex\]](#).
- [3] G. Alexander *et al.*, “Observation of Polarized Positrons from an Undulator-Based Source” *Phys. Rev. Lett.* **100** (2008) 210801.
- [4] G. Alexander, J. Barley, Y. Batygin, S. Berridge, V. Bharadwaj, *et al.*, “Undulator-Based Production of Polarized Positrons” *Nucl. Instrum. Meth.* **A610** (2009) 451–487, [arXiv:0905.3066 \[physics.ins-det\]](#).
- [5] **CALICE Collaboration**, C. Adloff *et al.*, “Effects of high-energy particle showers on the embedded front-end electronics of an electromagnetic calorimeter for a future lepton collider” *Nucl. Instrum. Meth.* **A654** (2011) 97–109, [arXiv:1102.3454 \[physics.ins-det\]](#).
- [6] M. S. Amjad *et al.*, “Beam test performance of the SKIROC2 ASIC” *Nucl. Instrum. Meth.* **A778** (2015) 78–84.
- [7] **CALICE Collaboration**, B. Bilki *et al.*, “Testing hadronic interaction models using a highly granular silicon–tungsten calorimeter” *Nucl. Instrum. Meth.* **A794** (2015) 240–254, [arXiv:1411.7215 \[physics.ins-det\]](#).
- [8] M. S. Amjad *et al.*, “A precise characterisation of the top quark electro-weak vertices at the ILC” *Eur. Phys. J.* **C75** (2015) no. 10, 512, [arXiv:1505.06020 \[hep-ex\]](#).
- [9] F. Sefkow, A. White, K. Kawagoe, R. Pöschl, and J. Repond, “Experimental Tests of Particle Flow Calorimetry” *Rev. Mod. Phys.* (2016) no. 88, 015003, [arXiv:1507.05893 \[physics.ins-det\]](#).
- [10] **CALICE Collaboration**, G. Eigen *et al.*, “Characterisation of different stages of hadronic showers using the CALICE Si-W ECAL physics prototype” *Nucl. Instrum. Meth.* **A937** (2019) 41–52, [1902.06161](#).
- [11] K. Kawagoe *et al.*, “Beam test performance of the highly granular SiW-ECAL technological prototype for the ILC” *Nucl. Instrum. Meth. A* **950** (2020) 162969, [arXiv:1902.00110 \[physics.ins-det\]](#).

Peer-reviewed conference proceedings

- [1] R. Pöschl, “Dijet Rates at low x_B and low Q^2 ” in *Deep Inelastic Scattering - DIS 2000*, J. Gracey and T. Greenshaw, eds., p. 265. World Scientific, 2000.
- [2] **ZEUS, H1**, R. Pöschl, “Jets and event shape studies in e p collisions at HERA” in *Proceedings, 36th Rencontres de Moriond on QCD and High Energy Hadronic Interactions: Les Arcs, France, Mar 17-24, 2001*, pp. 119–122. 2002.
[arXiv:hep-ex/0106036](https://arxiv.org/abs/hep-ex/0106036) [hep-ex].
<http://alice.cern.ch/format/showfull?sysnb=2258930>.
- [3] **ZEUS, H1**, R. Pöschl, “Studying low x dynamics using the hadronic final state in DIS at HERA” *Eur. Phys. J.* **C33** (2004) S445–S447, [arXiv:hep-ex/0311055](https://arxiv.org/abs/hep-ex/0311055) [hep-ex].
- [4] **ZEUS, H1**, R. Pöschl, “Jets in deep-inelastic scattering at HERA and determinations of $\alpha(S)$ ” in *Fundamental interactions. Proceedings, 19th Lake Louise Winter Institute, Lake Louise, Canada, February 15-21, 2004*, pp. 269–273. 2004.
[arXiv:hep-ex/0406030](https://arxiv.org/abs/hep-ex/0406030) [hep-ex].
- [5] R. Pöschl and the CALICE Collaboration, “R&D for a SiW Electromagnetic Calorimeter for a Future Linear Collider” *Journal of Physics: Conference Series* **293** (2011) no. 1, 012069. <http://stacks.iop.org/1742-6596/293/i=1/a=012069>.
- [6] **CALICE Collaboration**, R. Pöschl, “A large scale prototype for an SiW electromagnetic calorimeter for the ILC - EUDET module” *Nucl.Instrum.Meth.* **A617** (2010) 113–114.
- [7] J. Rouëné, “Construction and testing of a large scale prototype of a silicon tungsten electromagnetic calorimeter for a future lepton collider” *Nucl.Instrum.Meth.* **A732** (2013) 470–474.
- [8] R. Pöschl, “A precise determination of top quark electroweak couplings at the ILC operating at 500 GeV” *Proceedings of Science (EPS-HEP 2013)* (2013) no. 244, .
http://pos.sissa.it/archive/conferences/180/244/EPS-HEP%202013_244.pdf.
- [9] **CALICE Collaboration**, R. Pöschl, “R&D for a highly granular silicon tungsten electromagnetic calorimeter” *J. Phys. Conf. Ser.* **587** (2015) no. 1, 012032.
- [10] R. Pöschl, “The Physics Case of the International Linear Collider” *Acta Phys. Polon.* **B46** (2015) no. 7, 1375–1389.
- [11] R. Pöschl, “Top Quark Physics at Linear Colliders” *PoS EPS-HEP2015* (2015) 316.
- [12] R. Pöschl, “Top Quark Physics at Linear Colliders” *Frascati Phys. Ser.* **61** (2016) 64–71.
- [13] **CALICE Collaboration**, S. Bilokin, N. van der Kolk, and R. Pöschl, “Hadrons in the CALICE silicon-tungsten electromagnetic calorimeter” *J. Phys. Conf. Ser.* **928** (2017) no. 1, 012036.

- [14] R. Pöschl, “Future colliders - Linear and circular” *PoS ALPS2018* (2018) 042, [arXiv:1809.10426](#) [[physics.acc-ph](#)].
- [15] **CALICE**, R. Pöschl, “Recent results of the technological prototypes of the CALICE highly granular calorimeters” *Nucl. Instrum. Meth. A* **958** (2020) 162234, [arXiv:1904.02825](#) [[physics.ins-det](#)].
- [16] **CALICE**, D. Breton, A. Irlles, J. Jeglot, J. Maalmi, R. Pöschl, and D. Zerwas, “CALICE SiW ECAL - Development and performance of a highly compact digital readout system” *JINST* **15** (2020) no. 05, C05074, [arXiv:2002.09556](#) [[physics.ins-det](#)].
- [17] **CALICE**, R. Pöschl, “The CALICE SiW ECAL Technological Prototype—Status and Outlook” *Instruments* **6** (2022) no. 4, 75, [arXiv:2211.07457](#) [[physics.ins-det](#)].

Further Publications

- [1] **ILD Concept Group - Linear Collider Collaboration**, T. Abe *et al.*, “The International Large Detector: Letter of Intent” [arXiv:1006.3396](#) [[hep-ex](#)].
- [2] V. Boudry, G. Fisk, R. Frey, F. Gaede, C. Hast, *et al.*, “Summary of the Linear Collider Testbeam Workshop 2009 - LCTW09” [arXiv:1010.1337](#) [[physics.ins-det](#)].
- [3] **ILD Design Study Group**, H. Li *et al.*, “HZ Recoil Mass and Cross Section Analysis in ILD” [arXiv:1202.1439](#) [[hep-ex](#)].
- [4] P. Doublet, F. Richard, R. Pöschl, T. Frisson, and J. Rouene, “Determination of Top-quark Asymmetries at the ILC” [arXiv:1202.6659](#) [[hep-ex](#)].
- [5] **CALICE Collaboration**, R. Pöschl, “Interactions of hadrons in the CALICE silicon tungsten electromagnetic calorimeter” [arXiv:1203.1240](#) [[physics.ins-det](#)].
- [6] D. Asner, A. Hoang, Y. Kiyo, R. Pöschl, Y. Sumino, *et al.*, “Top quark precision physics at the International Linear Collider” [arXiv:1307.8265](#) [[hep-ex](#)].
- [7] T. Behnke, J. E. Brau, P. N. Burrows, J. Fuster, M. Peskin, *et al.*, “The International Linear Collider Technical Design Report - Volume 4: Detectors” [arXiv:1306.6329](#) [[physics.ins-det](#)].
- [8] H. Baer, T. Barklow, K. Fujii, Y. Gao, A. Hoang, *et al.*, “The International Linear Collider Technical Design Report - Volume 2: Physics” [arXiv:1306.6352](#) [[hep-ph](#)].
- [9] **Top Quark Working Group**, K. Agashe *et al.*, “Snowmass 2013 Top quark working group report” [arXiv:1311.2028](#) [[hep-ph](#)].
- [10] R. Calkins, S. Chekanov, J. Conway, J. Dolen, R. Erbacher, *et al.*, “Reconstructing top quarks at the upgraded LHC and at future accelerators” [arXiv:1307.6908](#) [[hep-ph](#)].

- [11] M. Amjad, M. Boronat, T. Frisson, I. Garcia, R. Pöschl, *et al.*, “A precise determination of top quark electro-weak couplings at the ILC operating at $\sqrt{s} = 500$ GeV” [arXiv:1307.8102](#) [[hep-ex](#)].
- [12] **CALICE Collaboration**, C. Adloff *et al.*, “Calorimetry for Lepton Collider Experiments - CALICE results and activities” *ArXiv e-prints* (Dec., 2012) , [arXiv:1212.5127](#) [[physics.ins-det](#)].
- [13] T. Frisson and R. Pöschl, “Coherent noise source identification in multi channel analysis” [arXiv:1401.7095](#) [[physics.ins-det](#)].
- [14] K. Fujii *et al.*, “Physics Case for the International Linear Collider” [arXiv:1506.05992](#) [[hep-ex](#)].
- [15] **CALICE Collaboration**, “Tracks of hadronic showers in the Si-W ECAL physics prototype” Tech. Rep. CALICE Analysis Note CAN-055. CALICE-CAN-2016-001, 2016. <http://cds.cern.ch/record/2669486>.
- [16] **LCC Physics Working Group**, K. Fujii *et al.*, “Implications of the 750 GeV gamma-gamma Resonance as a Case Study for the International Linear Collider” [arXiv:1607.03829](#) [[hep-ph](#)].
- [17] K. Fujii *et al.*, “The Potential of the ILC for Discovering New Particles” [arXiv:1702.05333](#) [[hep-ph](#)].
- [18] M. Mannelli, R. Pöschl, and A. Seiden, “Energy and time measurements with high-granular silicon devices” [arXiv:1704.01304](#) [[physics.ins-det](#)].
- [19] S. Bilokin, R. Pöschl, and F. Richard, “Measurement of b quark EW couplings at ILC” [arXiv:1709.04289](#) [[hep-ex](#)].
- [20] K. Fujii *et al.*, “Physics Case for the 250 GeV Stage of the International Linear Collider” [arXiv:1710.07621](#) [[hep-ex](#)].
- [21] P. Bambade *et al.*, “The International Linear Collider: A Global Project” [arXiv:1903.01629](#) [[hep-ex](#)].
- [22] A. Irls, R. Pöschl, F. Richard, and H. Yamamoto, “Complementarity between ILC250 and ILC-GigaZ” in *Linear Collider Community Meeting Lausanne, Switzerland, April 8-9, 2019*. 2019. [arXiv:1905.00220](#) [[hep-ex](#)].
- [23] K. Fujii *et al.*, “Tests of the Standard Model at the International Linear Collider” [arXiv:1908.11299](#) [[hep-ex](#)].
- [24] **ILD Concept Group**, H. Abramowicz *et al.*, “International Large Detector: Interim Design Report” [arXiv:2003.01116](#) [[physics.ins-det](#)].
- [25] **ILD**, A. Irls, R. Pöschl, and F. Richard, “Production and measurement of $e^+e^- \rightarrow c\bar{c}$ signatures at the 250 GeV ILC” in *International Workshop on Future Linear Colliders*. 2, 2020. [arXiv:2002.05805](#) [[hep-ex](#)].

- [26] K. Fujii *et al.*, “ILC Study Questions for Snowmass 2021” [arXiv:2007.03650](#) [[hep-ph](#)].
- [27] ECFA Detector R&D Roadmap Process Group, “[The 2021 ECFA detector research and development roadmap](#)” tech. rep., Geneva, 2020. <https://cds.cern.ch/record/2784893>.
- [28] A. Irlles, R. Pöschl, and F. Richard, “Experimental methods and prospects on the measurement of electroweak b and c -quark observables at the ILC operating at 250 GeV” [arXiv:2306.11413](#) [[hep-ex](#)].
- [29] “DRD 6: Calorimetry”. <https://cds.cern.ch/record/2886494>.
- [30] A. Irlles, J. P. Márquez, R. Pöschl, F. Richard, A. Saibel, H. Yamamoto, and N. Yamatsu, “Probing Gauge-Higgs Unification models at the ILC with di-quark forward-backward asymmetry at center-of-mass energies above the Z mass” [arXiv:2403.09144](#) [[hep-ph](#)].

4 Management of Research

- 2006-2009: Work package leader ECAL in the European FP6 project EUDET;
- Since 2008: Group leader of ILC group at LAL(IJCLab since 2020)
- 2009-2015: Chair of the CALICE Technical Board;
- 2010-2013: Responsible of the partner LAL within the ANR CALIIMAX-HEP (2010-BLANC-0429-01);
- 2011-2015: Deputy coordinator of the AIDA work package “Granular Calorimeters” and leader of ECAL task within that work package;
- Since 2013: Reviewer for European Journal of Physics C, Journal of High Energy Physics, Journal of Instrumentation, Physics Letters B, Review of Modern Physics, Nuclear Instruments and Methods A;
- 2015-2020: Co-Coordinator of the work package “Calorimetry in the Horizon 2020 project AIDA-2020;
- 2016-2017: French responsible of the French-Korean PHC-Star project “RECFEB”;
- 2016-2020: Steering board member of the LabEx (ANR-10-LABX-0038) excellence project “HIGHTEC”;
- Since 2018: Member of the LHC Resources Scrutiny Group, representing the IN2P3 in that panel;
- 2018-2019: Chair of the CALICE Speakers Bureau;
- Since 2019: Spokesperson of the CALICE Collaboration;
- 2019-2022: Member of LHC Phase 2 Upgrade Group (P2UG);
- 2020-2023 Co-convenor of the Task Force on Calorimetry for the ECFA Detector R&D Roadmap and Co-convenor of the Proposal Team to form the DRD-on-Calorimetry;
- Since 2021: Co-Coordinator of the workpackage “Calorimetry and Particle ID in the Horizon 2020 project AIDAinnova.