

# Marek Taševský

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SCIENTIFIC DEGREE: Research Professor of the Czech Academy of Sciences from 2021

EDUCATION **Charles University**, Prague, Czech Republic

Ph.D., Subnuclear Physics, February 2000

- Dissertation Topic: “Virtual photon structure from low  $Q^2$  dijet production at HERA”
- Advisor: Alice Valkárová

M.S., Subnuclear Physics, June 1993

RESEARCHER ID ORCID: 0000-0002-1535-9732  
INSPIRE ID: INSPIRE-00224260

LANGUAGE SKILLS **Czech** - Native language  
**English** - Good level of speaking, reading and writing  
**French** - Good level of speaking, reading and writing  
**Russian** - Basic level of speaking and writing, good level of reading

## RESEARCH INTERESTS **Experimental and Phenomenological Particle Physics**

- **Soft QCD phenomena (hadronization, particle production and correlations)**  
Measured several types of quark and gluon fragmentation functions using OPAL data. Interested in interplay between soft and hard scales and in proper choice of the hard scale. Relation between biased and unbiased jets for such measurements. Observed unexpected similarities in correlations between small and large collision systems is a vibrant topic.
- **Diffraction processes**  
Interested in interplay between soft and hard scales. Extracting soft survival probabilities from real data.
  - Searches for QCD Instantons
- **Exclusive processes useful for New Physics searches**  
Interested in providing realistic feasibility studies making use of Forward Proton detectors and fast simulation of ATLAS/CMS detector, and considering all relevant backgrounds. Focusing on procedures for taming huge pile-up backgrounds utilizing exclusivity criteria including Time-of-Flight detectors.
  - Dark Matter searches and Axion-like particle searches using  $\gamma\gamma$  collisions at LHC
  - $t\bar{t}$  production in photon-induced or Pomeron-induced processes
  - Exclusive Higgs boson production
  - Participating in developing Monte Carlo models (**SuperChic**)
- **ATLAS Forward Proton (AFP) detector: combined performance studies, Time-of-Flight (ToF) performance, global alignment**
  - Responsible for global alignment using Beam Position Monitors around LHC beam pipe.

- Dependence of pile-up suppression on time and spatial resolutions of ToF detector.
- **Jet physics**  
Radius-dependence, Infra-red safety, multi-jet events, experimental reconstruction techniques.
- **Photon structure**  
Evolution with virtuality and hard scale. Proper choice of hard scale. Virtual photon structure: role of longitudinally polarized photons.

#### EMPLOYMENT HISTORY

- 2019 — present: **Leading researcher** at Institute of Physics of CAS, Prague.
- 2005 — 2019: **Senior researcher** at Institute of Physics of CAS, Prague.
- 2003 — 2005: **Postdoctoral Fellow** in Department of Physics of Antwerp University, Belgium.
- 2000 — 2003: **Scientific Fellow** at CERN.
- 1998 — 2000: **Junior researcher** at Institute of Physics of CAS, Prague.

#### Teaching Experience

- 2017, 2021: **one-semester PhD course** *Diffraction in particle physics* at Palacky University, Olomouc.

#### INITIATIVES

- 2015, 2016, 2018, 2022: Main organizer of 2-day workshops for students of all levels. First day primarily devoted to student presentations and getting feedback from other students and senior researchers including an invited respected theorist from abroad. Second day devoted to lectures given by the theorist.

#### Supervision

##### PHD THESES

- 2021 — present [co-supervisor]: Maura G. B. T. (Laboratory of Instrumentation and Experimental Particles Physics, Lisbon, Portugal), *ATLAS searches for rare dark matter signatures*, including technical supervision of her qualification task in ATLAS.
- 2009 — 2015 (defended): Vlastimil K. (Charles University, Prague), *Study of diffractive processes at the ATLAS Experiment*, forming the base of the ATLAS paper “Dijet production in  $\sqrt{s} = 7$  TeV pp collisions with large rapidity gaps at the ATLAS experiment” (publication (10) below).
- 2006 — 2011 (defended) [consultant]: Vojtěch J. (Czech Technical University, Prague), *Central Exclusive Higgs Boson Production in the ATLAS Experiment at the LHC*.

##### MASTER THESES

- 2016 — 2019: Ota Z. (Czech Technical University, Prague), *Study of the top quark in the ATLAS experiment*.
- 2007 — 2009: Vlastimil K. (Charles University, Prague), *Study of diffractive processes at the ATLAS Experiment*.
- 2006 — 2008 [consultant]: Pavel R. (Czech Technical University, Prague), *Detailed simulation of the AFP detector*.

## BACHELOR THESES

- 2016 — 2017: Ondřej S. (Czech Technical University, Prague), *Jet processes at LHC*.
- 2016 — 2017: Dagmar B. (Czech Technical University, Prague), *Study of diffractive processes at LHC*.
- 2015 — 2016: Ota Z. (Czech Technical University, Prague), *Jet physics at LHC*.

ONE-YEAR  
INTERNSHIPS IN THE  
ATLAS  
EXPERIMENT

- 2022 — 2023: Weronika S. (DESY), *Global alignment of AFP with exclusive leptons in Run 3*.
- 2021 — 2022: Pragati P. (Krakow IFJ PN), *Beam optics studies for AFP in Run 2 and Run 4*.
- 2020 — 2021: Yohany R. G. (Bogota UAN), *Global alignment of AFP with exclusive leptons in Run 2*.

RESEARCH  
ACTIVITIES

- 2019 — present: Responsible for AFP Global alignment using Beam Position Monitors.
- 2019: Asked by PDG to lead the effort to write a new chapter about Soft QCD and Diffraction in the Review of Particle Physics (publication **(8)** below).
- 2017 — present: Active in providing the physics case for keeping AFP in the High-Luminosity Upgrade period at LHC (HL-LHC phase). In 2021 and 2022 leading a working group “AFP Physics case for HL-LHC” and summarizing the outcome in a written document (46 pages). Co-authored papers which propose various measurements using AFP, e.g. search for Dark Matter and Axion-like particles, top–anti-top production or Wigner function, proposing novel approaches in taming pile-up backgrounds, and participated in development of tools, e.g. **SuperChic 4** and ToF method.
- 2015 — 2020: Deputy Physics Coordinator of AFP.
- 2012 — present: Founding member of AFP (ATLAS Forward Proton, successor of RP220), till 2017 member of AFP management board. Co-author of the physics motivation.
- 2006 — 2012: During the period of my Deputy Project Leadership of the RP220 project (Roman Pots at 220 m) I helped to form and co-lead a working group in Prague focused on forward physics at LHC (about 8 people): feasibility studies for the physics case of the project RP220 in ATLAS, acceptance and resolution studies, fast and detailed simulation, alignment and R&D for Silicon detectors and Roman Pots. Fully funded from a general grant covering all Czech activities in ATLAS.
- 2005 — 2009: Member of FP420, as a main analyser, I was one of responsables for the physics case and asked to present status at several reviews. From a close cooperation with a renowned theory group Khoze-Martin-Ryskin (KMR) several phenomenology papers originated which formed a core of the physics case for the FP420 project (Forward Protons at 420 m from the interaction point of ATLAS/CMS detector) and for the seminal work on prospects for forward physics at LHC (publications **(17)** and **(20)**, respectively, below).
- 2003 — 2005: During my postdoctoral stay in Antwerp University in Belgium I joined the CMS experiment where I was responsible for implementing fast simulation of Roman Pots (forward proton detectors), belonging to the TOTEM experiment, in the CMS reconstruction software. With this tool and together with detailed simulation of the response of the CMS detector to signal as well as background events with properly overlaid pile-up interactions, I was able to estimate feasibility of the detection of Higgs bosons produced exclusively in three main decay modes ( $b\bar{b}$ ,  $WW$  and  $\tau\tau$ ).
- 2000 — 2003: I moved to CERN where I obtained a scientific fellowship for 2 years. My work on measurements of several types of fragmentation functions together with their scaling violations using all LEP 1 and LEP 2 data was published as an OPAL paper and was regularly cited in the Review of Particle Physics by Particle Data Group. Beside the observed scaling violations, the extensive OPAL paper includes studies of differences between biased and unbiased jets and a proper choice of the hard scale.

- 1995 — 2000: I joined the H1 Collaboration at DESY in Hamburg where my technical task was to provide a software package which would link detector objects belonging to one particle, i.e. tracks in various tracking detectors and clusters or towers in calorimeters and muon spectrometers. The package was included as a switchable module in the official H1 reconstruction program. The topic of my PhD thesis was structure of real and virtual photons via jets in the final state. A fruitful collaboration with theorists as well as model builders was established and utilized in the thesis text and phenomenology papers.

FUNDED RESEARCH  
PROJECTS

- 2000 — 2001: PI of the grant of the Grant Agency of CAS (IAB1010005), *The jet production in interactions of the virtual photon.*

LEADERSHIP AND  
COORDINATION

- 2021: Research Professor of the Czech Academy of Sciences
- 2021 — present: Head of the Department of Experimental Particle Physics at home institute.
- 2009 — 2020: Deputy Head of the Department of Experimental Particle Physics at home institute.
- 2020: Chair of Programme Committee and Scientific Secretary of the ICHEP2020 Conference.
- 2020 — present: Chair of the Forward Detector Institutional Board in the ATLAS experiment.
- 2020 — present: Co-convener of the working group Soft QCD and Diffraction in the ATLAS experiment.
- 2015 — 2020: AFP Deputy Physics Coordinator in the ATLAS experiment.
- 2019 — present: Representative of Czech Republic in Restricted meetings of the Committee for Future Accelerators (RECFA).
- 2014 — present: Representative of Czech Republic in Plenary meetings of the Committee for Future Accelerators (ECFA).
- 2017: Chair of the Local Organizing Committee of the Elastic and Diffractive scattering Conference (EDS 2017) in Prague.
- 2017: Deputy Chair and Chair of the Speakers Committee in the ATLAS experiment.
- 2014 — present: Institute Representative in the Forward Detector group in the ATLAS experiment.
- 2012 — 2017: Member of the AFP Management Board in the ATLAS experiment.
- 2006 — 2012: Co-leader of the Czech working group focusing on forward physics at LHC.
- 2006 — 2012: Deputy Project Leader of the RP220 project (predecessor of AFP).
- 2006 — 2009: Physics Co-coordinator of the FP420 Collaboration.

MEMBERSHIP IN  
COMMITTEES

- 2022 — present: Member of the Editorial Board of the journal Physics (MDPI).
- 2021 — present: Member of the Editorial Board of the journal Symmetry (MDPI).
- 2019: Member of the Local Organizing Committee of the Multiple-partonic interactions Conference (MPI 2019) in Prague.
- 2015: Member of the Program Committee of the International Symposium on Multi-particle Dynamics Conference (ISMD 2015).
- 2014 — 2017: Member of the Speakers Committee in the ATLAS experiment.
- 2013 — 2017: Member of the Panel 203 of the Czech Science Foundation.

- 2013: Member of the Program Committee of the EDS 2013 Conference.
- 2011: Member of the Program Committee of the EDS 2011 Conference.
- As an opponent of theses, member of numerous Examination Committees at Czech universities.

ORGANIZATION OF  
NATIONAL EVENTS

- 2014 — present: Main organizer of assemblies of the Czech High-Energy Physics community.
- 2008 — 2019: Main organizer of regular division seminars at home institute.

OUTREACH  
ACTIVITIES

- 2014: author of the article *Future circular collider at CERN* in the Czech Journal for Physics, nr.4

PUBLICATIONS WITH  
DIRECT  
CONTRIBUTIONS

- (1) M. Tasevsky, V. Khoze, D. Milne and M. Ryskin, “*Searches for QCD instantons with forward proton tagging*”,  
Eur. Phys. J. **C83** (2023) 1, 35,  
— **Principal analyzer, bringing novel approaches in taming pile-up backgrounds for exclusive processes, responsible for generation of large data samples including fast simulation using DELPHES, main editor, interpretation of results.**
- (2) L. Harland-Lang and M. Tasevsky, “*New calculation of semi-exclusive axion-like particle production at the LHC*”,  
Phys. Rev. D. **107** (2023) 3, 3,  
— **Principal analyzer, responsible for generation of large data samples, for making plots, for interface to Pythia and all tests, co-editor, interpretation of results.**
- (3) D. E. Martins, M. Tasevsky and V. P. Gonçalves, “*Challenging exclusive top quark pair production at low and high luminosity LHC*”,  
Phys. Rev. D **105** (2022), 11, 11402,  
— **Initial idea, analysis lead, pile-up treatment and suppression, main editor, interpretation of results.**
- (4) K. Černý, M. Taševský, T. Sýkora and R. Žlebčík, “*Performance studies of Time-of-Flight detectors at LHC*”,  
JINST **16** (2021), P01030,  
— **Editing work, analysis advice, various consistency checks with results in publications (10) and (14), interpretation of results.**
- (5) G. Aad *et al.* [ATLAS], “*Observation and Measurement of Forward Proton Scattering in Association with Lepton Pairs Produced via the Photon Fusion Mechanism at ATLAS*”,  
Phys. Rev. Lett. **125** (2020) no.26, 261801,  
— **Global alignment and its uncertainties – summarized in an internal ATLAS note, analysis advice, interpretation of results, theory investigations and comparisons.**
- (6) L. A. Harland-Lang, M. Tasevsky, V. A. Khoze and M. G. Ryskin, “*A new approach to modelling elastic and inelastic photon-initiated production at the LHC: SuperChic 4*”,  
Eur. Phys. J. C **80**, no.10, 925 (2020),  
— **Responsible for production of large data samples, for making plots, for interface to Pythia and all tests, interpretation of results.**

(7) V. P. Gonçalves, D. E. Martins, M. S. Rangel and M. Tasevsky, “*Top quark pair production in the exclusive processes at the LHC*”,  
Phys. Rev. D **102**, no.7, 074014 (2020),  
— **Initial idea, analysis lead, pile-up treatment and suppression, main editor, interpretation of results.**

(8) P. A. Zyla *et al.* [Particle Data Group], “*Review of Particle Physics*”,  
PTEP **2020** (2020) no.8, 083C01,  
— **Main editor of the chapter High Energy Soft QCD and Diffraction, responsible for describing experimental results and procedures, and for choosing and providing experimental plots. Main contribution e.g. to total and elastic cross sections, final state interactions, correlations and underlying event.**

(9) G. Aad *et al.* [ATLAS], “*Measurement of differential cross sections for single diffractive dissociation in  $\sqrt{s} = 8$  TeV pp collisions using the ATLAS ALFA spectrometer*”,  
JHEP **02** (2020), 042 [erratum: JHEP **10** (2020), 182],  
— **Member of Editorial Board, reader of supporting note and drafts of the paper, recommendation to use Bayesian unfolding and a second model.**

(10) L. A. Harland-Lang, V. A. Khoze, M. G. Ryskin and M. Tasevsky, “*LHC Searches for Dark Matter in Compressed Mass Scenarios: Challenges in the Forward Proton Mode*”,  
JHEP **04**, 010 (2019),  
— **Initial idea, principal analyzer, bringing novel approaches in taming pile-up backgrounds for exclusive processes, responsible for generation of large data samples including fast simulation using DELPHES, main editor, interpretation of results.**

(11) M. Tasevsky [ALICE, ATLAS, CMS, LHCb, LHCf and TOTEM], “*Soft QCD measurements at LHC*”,  
Proceedings of the 28th International Symposium on Lepton Photon Interactions at High Energies, World Scientific,  
— **Main editor, collection of results from 6 experiments and communication with them, interpretation of results.**

(12) Y. Hagiwara, Y. Hatta, R. Pasechnik, M. Tasevsky and O. Teryaev, “*Accessing the gluon Wigner distribution in ultraperipheral pA collisions*”  
Phys. Rev. D **96**, no.3, 034009 (2017),  
— **Editing work, responsible for the experimental part, collection of information about existing data samples at ATLAS, CMS-TOTEM and STAR, interpretation of results.**

(13) G. Aad *et al.* [ATLAS], “*Dijet production in  $\sqrt{s} = 7$  TeV pp collisions with large rapidity gaps at the ATLAS experiment*”,  
Phys. Lett. B **754** (2016), 214-234,  
— **Responsible for validation of filter function developed to effectively generate large data samples with large rapidity gaps, analysis lead, contact editor, presentations inside ATLAS, communication with referees.**

(14) M. Tasevsky, “*Review of Central Exclusive Production of the Higgs Boson Beyond the Standard Model*”,  
Int. J. Mod. Phys. A **29** (2014), 1446012,  
— **Main editor. Collection of results and performing non-trivial consistency checks.**

(15) M. Tasevsky, “*Exclusive MSSM Higgs production at the LHC after Run I*”,

- Eur. Phys. J. C **73** (2013), 2672,  
— **Initial idea, principal analyzer, main editor, interpretation of results.**
- (16) S. Heinemeyer, V. A. Khoze, M. G. Ryskin, M. Tasevsky and G. Weiglein, “*BSM Higgs Physics in the Exclusive Forward Proton Mode at the LHC*”,  
Eur. Phys. J. C **71** (2011), 1649,  
— **Principal analyzer, editing work, interpretation of results.**
- (17) M. G. Albrow *et al.* [FP420 R&D], “*The FP420 R&D Project: Higgs and New Physics with forward protons at the LHC*”,  
JINST **4** (2009), T10001,  
— **Principal analyzer of the exclusive Higgs chapter - the core of the physics case, provided results and figures.**
- (18) M. Tasevsky, “*Diffraction physics program in ATLAS experiment*”,  
Nucl. Phys. B Proc. Suppl. **179-180** (2008), 187-195,  
— **Main editor.**
- (19) S. Heinemeyer, V. A. Khoze, M. G. Ryskin, W. J. Stirling, M. Tasevsky and G. Weiglein, “*Studying the MSSM Higgs sector by forward proton tagging at the LHC*”,  
Eur. Phys. J. C **53** (2008), 231-256,  
— **Principal analyzer, responsible for the experimental procedure, for all detector acceptances and resolutions, responsible for plots and tables, editing work, interpretation of results.**
- (20) M. Albrow *et al.* [CMS, TOTEM diffractive and forward physics working Group], “*Prospects for Diffractive and Forward Physics at the LHC*”,  
CERN-LHCC-2006-039, CERN-LHCC-G-124, CMS-Note-2007-002, TOTEM-Note-2006-005.  
— **Principal analyzer of the Exclusive Higgs chapter, responsible for Roman Pot acceptances and resolutions, provided plots and results, interpretation of results.**
- (21) B. E. Cox, A. De Roeck, V. A. Khoze, T. Pierzchala, M. G. Ryskin, I. Nasteva, W. J. Stirling and M. Tasevsky, “*Detecting the standard model Higgs boson in the WW decay channel using forward proton tagging at the LHC*”,  
Eur. Phys. J. C **45** (2006), 401-407,  
— **Co-analyzer, consistency checks, editing work, interpretation of results.**
- (22) J. Chýla, J. Cvach, K. Sedlák and M. Taševský, “*QCD analysis of dijet production at low  $Q^{*2}$  at HERA*”,  
Eur. Phys. J. C **40** (2005), 469-472,  
— **Analysis lead, editing work, interpretation of results.**
- (23) A. Aktas *et al.* [H1], “*Measurement of dijet production at low  $Q^{*2}$  at HERA*”,  
Eur. Phys. J. C **37** (2004), 141-159,  
— **Analysis lead, consistency checks, editing work, interpretation of results.**
- (24) G. Abbiendi *et al.* [OPAL], “*Scaling violations of quark and gluon jet fragmentation functions in  $e^+e^-$  annihilations at  $s^{*1/2} = 91.2\text{-GeV}$  and  $183\text{-GeV}$  to  $209\text{-GeV}$* ”,  
Eur. Phys. J. C **37** (2004) no.1, 25-47,  
— **Initial idea, principal analyzer, responsible for generation of large data samples, comparisons with theory, standalone studies of differences between biased and unbiased jets and a proper choice of the hard scale, main editor, interpretation of results,**

communication with referees.

(25) G. Abbiendi *et al.* [OPAL], “*Experimental studies of unbiased gluon jets from  $e^+e^-$  annihilations using the jet boost algorithm*”,  
Phys. Rev. D **69** (2004), 032002,

— **Consistency checks between gluon fragmentation functions obtained by the boost jet algorithm and by 3-jet events, provided NLO predictions of gluon fragmentation functions from three theory groups.**

(26) G. Abbiendi *et al.* [OPAL], “*Charged particle multiplicities in heavy and light quark initiated events above the  $Z^0$  peak*”,  
Phys. Lett. B **550** (2002), 33-46,

— **Member of editorial board, reader of supporting note and drafts of the paper.**

(27) J. Chyla and M. Tasevsky, “*Resolved  $\gamma_L^*$  in hard collisions of virtual photons: QCD effects*”,  
Eur. Phys. J. C **18** (2001), 723-729,

— **Principal analyzer, interpretation of results. Adaptation of theory calculations and performing time-demanding comparisons.**

(28) J. Chyla and M. Tasevsky, “*The Relevance of  $\gamma_L^*$  in hard collisions of virtual photons*”,  
Eur. Phys. J. C **16** (2000), 471-479,

— **Principal analyzer, interpretation of results. Adaptation of theory calculations and performing time-demanding comparisons.**

(29) J. Chyla and M. Tasevsky, “*Interpreting virtual photon interactions in terms of parton distribution functions*”,  
Phys. Rev. D **62** (2000), 114025,

— **Principal analyzer, interpretation of results. Adaptation of theory calculations and performing time-demanding comparisons.**

(30) C. Adloff *et al.* [H1], “*Measurement of dijet cross-sections at low  $Q^{*2}$  and the extraction of an effective parton density for the virtual photon*”,  
Eur. Phys. J. C **13** (2000), 397-414,

— **Co-analyzer, consistency checks, editing work, interpretation of results.**

INVITED ORAL  
PRESENTATIONS AT  
INTERNATIONAL  
CONFERENCES

Full list at <https://www.fzu.cz/~tasevsky/research/talks/conferences.html>.

- XXVII International Workshop on Deep Inelastic Scattering and Related Subjects (DIS 2019): *Measurements of single diffraction using the ALFA forward spectrometer at ATLAS (for ATLAS Collab.)*.
- XXVIII International Symposium on Lepton Photon Interactions at High Energies (Lepton Photon 2017): *Soft QCD measurements at LHC (for ALICE, ATLAS, CMS, LHCb, LHCf and TOTEM Collaborations)*.
- 8th International Workshop on Multiple Partonic Interactions at the LHC (MPI 2016): *ATLAS results on diffraction and exclusive production (for ATLAS Collab.)*.
- International Workshop on Diffraction in High-Energy Physics (Diffraction 2016): *Status of the AFP project in the ATLAS experiment (for ATLAS Collab.)*.
- International Workshop on Low-x Physics (Low-x 2015): *Measurement of dijet production in diffractive events with the ATLAS detector (for ATLAS Collab.)*.



- International Workshop on Diffraction in High-Energy Physics (Diffraction 2014): *Diffraction and Forward Physics results of the ATLAS experiment from the Run I (for ATLAS Collab.), Status of the AFP project in the ATLAS experiment (for ATLAS Collab.)*.
- International Workshop on Low-x Physics (Low-x 2014): *Status of the Exclusive Production of the Higgs Bosons at LHC, Status of the AFP project in the ATLAS experiment (for ATLAS Collab.)*.
- International Workshop New Trends in High-Energy Physics 2013: *Exclusive Production of the MSSM Higgs Bosons at LHC*.
- International Conference on Elastic and Diffractive Scattering (EDS-Blois 2013): *Exclusive Production of the MSSM Higgs Bosons at LHC*.
- International Workshop on Diffraction in High-Energy Physics (Diffraction 2012): *Results on Diffraction from the ATLAS Experiment (for ATLAS Collab.)*.
- International Workshop on Exclusive and Diffractive Processes in High-Energy Proton-Proton and Nucleus-Nucleus Collisions (2012): *Central Exclusive Production of BSM Higgs Bosons*.
- International Workshop on Diffraction in High-Energy Physics (Diffraction 2010): *Diffraction and Central Exclusive Production at ATLAS (for ATLAS Collab.)*.
- International Workshop on Low-x Physics (Low-x 2009): *The AFP Project and Recent Central Exclusive Higgs Studies*.
- International Workshop on Elastic and Diffractive Scattering (EDS-Blois 2009): *Overview of Central Exclusive Measurements at the LHC*.
- International Workshop on Low-x Physics (Low-x 2008): *The AFP Project in ATLAS (for AFP Collab.)*.
- International Workshop on High-Energy Photon-Photon Collisions at LHC 2008: *Diffractive Physics Program in ATLAS Experiment (for ATLAS Collab.)*.
- International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2008): *Studying the MSSM Higgs Boson Sector using Forward proton Tagging at LHC*.
- International Workshop on Parton Fragmentation Processes: in the Vacuum and in the Medium 2008: *Quark and Gluon Jet Fragmentation Functions as measured by OPAL (for OPAL Collab.)*.
- International Workshop on Low-x Physics (Low-x 2007): *SM/MSSM Central Exclusive Production of Higgs Boson at LHC*.
- International Conference on Elastic and Diffractive Scattering (EDS Blois 2007): *Prospects for Proton Tagging at High Luminosities at LHC (for ATLAS and CMS Collab.)*.
- HERA and the LHC: A Workshop on the implications of HERA for LHC physics (HERA-LHC 2007): *SM/MSSM Higgs Central Exclusive Production of Higgs Bosons at LHC*.
- International Workshop on Low-x Physics (Low-x 2006): *Diffractive Higgs Production at LHC (for CMS Collab.)*.
- HERA and the LHC: 2nd Workshop on the implications of HERA for LHC physics (HERA-LHC 2006): *Simulations of Diffractive Higgs Production (for CMS Collab.)*.
- International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2006): *Event Shape Distributions at LEP (for OPAL Collab.)*.
- International Symposium on Multiparticle Dynamics (ISMD 2005): *Exclusive DPE Higgs Boson Production at LHC (for CMS Collab.)*.
- International Workshop on Low-x Physics (Low-x 2005): *Higgs Production in Exclusive DPE Events in CMS (for CMS Collab.)*.
- HERA and the LHC: A Workshop on the implications of HERA for LHC physics (HERA-LHC 2005): *Exclusive DPE Higgs Production in the CMS fast Simulation (for CMS Collab.)*.

- International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2004): *Forward Physics with CMS (for CMS Collab.), Scaling violations of Quark and Gluon Jet Fragmentation Functions in  $e^+e^-$  Annihilations (for OPAL Collab.)*.
- International Conference New Trends in High-Energy Physics 2001: *Differences Between Quark and Gluon Jets as seen by OPAL (for OPAL Collab.)*.
- International Workshop on Gamma-Gamma and Gamma-Proton Interactions (Cracow 1998): *Resolved Photon Processes at HERA (for H1 Collab.)*.
- International Workshop on Deep-inelastic Scattering and Related Subjects (DIS 1998): *Jets as a Source of Information about the Photon Structure (for H1 Collab.)*.

ORAL  
PRESENTATIONS AT  
INTERNATIONAL  
EVENTS

- Workshop on Photon-induced processes 2022: *Photon induced di-jets and general QCD analysis with AFP*
- Meeting of the LHC Top Physics Working Group 2020: *(Semi)Exclusive production of Top pair at LHC*.
- Plenary ECFA Meeting 2019: *Mid-term report: Czech Republic*.
- European Physical Society Conference on High Energy Physics 2019 (EPS-HEP 2019): *Searches for Dark Matter at LHC in forward proton mode*.
- ATLAS Overview (Collaboration) Week 2019: *Forward proton physics and performance*.
- XXVII International Workshop on Deep Inelastic Scattering and Related Subjects (DIS 2019): *Searches for Dark Matter at the LHC in forward proton mode*.
- Meeting of the LHC Working Group on Forward Physics and Diffraction 2017: *AFP physics prospects (for ATLAS Collab.)*.
- ATLAS Overview (Collaboration) Week 2017: *Speakers Committee report*.
- AFP Physics Review (ATLAS internal) 2014: *Physics Program of the AFP Project in the Run II*.
- International Workshop on Low-x Physics (Low-x 2013): *News on Exclusive Production of the Higgs Bosons*.
- International Workshop on Low-x Physics (Low-x 2012): *News on Exclusive Production of BSM Higgs Bosons*.
- International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2012): *News on Exclusive Production of BSM Higgs Bosons*.
- International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS 2011): *Exclusive Production of the BSM Higgs Bosons at the LHC*.
- AFP Review (ATLAS internal) 2011: *Tracking detectors for AFP upgrade project*
- International Workshop on Low-x Physics (Low-x 2010): *News on Exclusive Diffractive Higgs Studies*.
- AFP Review (ATLAS internal) 2009: *Overview of recent CED Higgs studies*.
- International Meeting on Forward Physics at LHC (Manchester 2008): *Update on MSSM studies using forward detectors at LHC, 3D-Si detectors for RP220 (for RP220 Collab.)*.
- International Meeting on Forward Physics at LHC (Manchester 2007): *MSSM scan for Central Exclusive Production of Higgs  $\rightarrow bb/WW/\tau\tau$* .
- International Meeting on Diffraction and Forward Physics at HERA and the LHC (Antwerp 2007): *Status of RP220 Project (for RP220 Collab.)*.
- International Workshop on Hard Diffraction at LHC (Cracow 2007): *SM/MSSM Central Exclusive Production of Higgs Boson at LHC, Status of FP420 Project (for FP420 Collab.)*.

- International Meeting on Forward Physics at LHC (Manchester 2006): *Pile-up studies for  $H \rightarrow bb$ , Project to install RPs at 220 m in ATLAS (for RP220 Collab.)*.
- International Workshop on background to  $H \rightarrow bb$  Processes (CERN 2006): *Study of Pile-up Effects at LHC (for CMS Collab.)*.
- HERA and the LHC: A Workshop on the implications of HERA for LHC physics (HERA-LHC 2005): *Exclusive DPE Higgs generators in the CMS fast Simulation (for CMS Collab.)*.

ORAL  
PRESENTATIONS AT  
NATIONAL EVENTS

- Assembly of the CZ HEP Community 2021: *ECFA & RECFA Activities*.
- Exceptional Assembly of the CZ and SK HEP Communities (discussion on Update of European Strategy of Particle Physics) 2019: *Linear Collider meeting in Lausanne April 2019*.
- Exceptional Assembly of the CZ and SK HEP Communities (discussion on Update of European Strategy of Particle Physics) 2018: *Future Linear and Circular Colliders*.
- CZ-SK ATLAS Physics workshop 2018: *Status of AFP*.
- Assembly of the CZ HEP Community 2017: *Future Colliders*.
- Assembly of the CZ HEP Community 2015: *Future Circular Colliders: FCC and CEPC-SppC*.
- CZ-SK ATLAS physics workshop 2015: *Diffraction dijets in ATLAS*.
- RECFA visit to Czech Republic 2015: *Czech participation in HEP experiments (except ATLAS)*.
- Assembly of the CZ HEP Community 2014: *Future Circular Colliders: FCC (and CEPC-SppC)*.
- Assembly of the CZ HEP Community 2014: *FCC - Future Circular Colliders*.
- Memorial meeting "H1 after 20 years": *Forward physics at LHC and Higgs boson production in diffraction*.

LECTURES IN  
INTERNATIONAL  
SCHOOLS

- WE-Heraeus-Summerschool on Diffractive and Electromagnetic Processes at High Energies 2011: *Proton tagging at high luminosities at the LHC*.
- LAFEX International School on High-Energy Physics - Present and Future (LISHEP 2011): *AFP and HPS - Forward Proton Projects (for AFP and HPS Collab.)*.

SEMINARS

- Seminar of the Institute of theoretical physics of Charles University 2021: *Exclusivity at high-energy collisions*
- Seminar of the Joint Laboratory of Optics and Department of applied physics, Palacky University, Olomouc 2017: *Soft QCD measurements at LHC and Highlights from the Lepton Photon 2017 conference*.
- Seminar of the Division of Physics of elementary particles, Institute of Physics of CAS 2017: *Soft QCD measurements at LHC and Highlights from the Lepton Photon 2017 conference*.
- Seminar of the Division of Physics of elementary particles, Institute of Physics of CAS 2014: *FCC - Future Circular Collider*.
- Seminar of the Division of Physics of elementary particles, Institute of Physics of CAS 2010: *Status of the AFP Project*.
- Seminar at the Institute of Particle and Nuclear Physics, Charles University 2008: *Diffraction Physics Program in ATLAS Experiment and Exclusive Higgs*.

- Seminar of the Division of Physics of elementary particles, Institute of Physics of CAS 2007:  
*Forward physics at LHC.*
- Seminar of the Division of Physics of elementary particles, Institute of Physics of CAS 2000:  
*Photon structure from dijet production at HERA.*
- Seminar of the Institute of Experimental Physics of Slovak Academy of Sciences, Košice 1998:  
*Low  $Q^2$  dijet production from the H1 data.*