

Dinko Ferenček

Životopis

Osobni podaci

Ime Dinko
Prezime Ferenček
Datum rođenja 11. lipnja 1983.
Mjesto rođenja Zagreb, Hrvatska
Državljanstvo Hrvatsko
Spol Muško
Bračni status Oženjen, 1 dijete

Kontakt

Poštanska adresa Institut Ruđer Bošković
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10000 Zagreb, Hrvatska
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Internetska stranica <http://cern.ch/ferencek/>
Elektronička pošta Dinko.Ferencek@irb.hr

Obrazovanje

2006–2011 **Ph.D., Physics**, University of Maryland, SAD (mentor Prof. Sarah C. Eno)
Disertacija: [Search for Pair Production of First-Generation Scalar Leptoquarks in Proton-Proton Collisions at \$\sqrt{s} = 7\$ TeV](#)
2001–2006 **mag. phys.** (originalno **dipl. ing. fizike**), Sveučilište u Zagrebu, Hrvatska
(mentor Prof. Mirko Planinić/ko-mentor Dr. Vuko Brigljević)
Diplomski rad: *Produkcija WZ bosona u proton-proton sudarima na $\sqrt{s} = 14$ TeV*

Radno iskustvo

Svibanj 2021.–danas **Viši znanstveni suradnik**, Institut Ruđer Bošković, Zagreb, Hrvatska
CMS eksperiment na CERN-ovom LHC-u
Studeni 2015.–svibanj 2021. **Znanstveni suradnik**, Institut Ruđer Bošković, Zagreb, Hrvatska
CMS eksperiment na CERN-ovom LHC-u
Rujan 2011.–listopad 2015. **Poslijedoktorand**, Rutgers, The State University of New Jersey, SAD
CMS eksperiment na CERN-ovom LHC-u
Lipanj 2007.–kolovoz 2011. **Asistent u istraživanju**, University of Maryland, SAD
CMS eksperiment na CERN-ovom LHC-u

Publikacije

Kao član kolaboracije CMS, koautor sam više od 900 recenziranih znanstvenih članaka objavljenih u međunarodnim znanstvenim časopisima¹. Niže se nalazi popis odabranih publikacija kojima sam dao značajan doprinos.

Odabrane publikacije

- 2021 Ferenček D., Roguljić M., Starodumov A., “Production, calibration, and performance of the layer 1 replacement modules for the CMS pixel detector”, *Proceedings of The 29th International Workshop on Vertex Detectors (VERTEX2020)*, JPS Conf. Proc. **34**, 010023 (2021)
- 2020 Roguljić M., Starodumov A., Karadzhinova-Ferrer A., Ferenček D., Ahmed A. A., Jara-Casas L. M., “Low dose rate ⁶⁰Co facility in Zagreb”, *Proceedings of The 28th International Workshop on Vertex Detectors — PoS(Vertex2019)*
- 2019 Majer M., Roguljić M., Knežević, Ž., Starodumov A., Ferenček D., Brigljević V., Mihaljević B., “Dose mapping of the panoramic ⁶⁰Co gamma irradiation facility at the Ruđer Bošković Institute – Geant4 simulation and measurements”, *Appl. Radiat. Isot.* **154** (2019) 108824
- 2018 CMS Collaboration, “Identification of heavy-flavour jets with the CMS detector in pp collisions at 13 TeV”, *JINST* **13** (2018) P05011, [arXiv:1712.07158](https://arxiv.org/abs/1712.07158)
- 2017 CMS Collaboration, “Search for dijet resonances in proton-proton collisions at $\sqrt{s} = 13$ TeV and constraints on dark matter and other models”, *Phys. Lett. B* **769** (2017) 520, [arXiv:1611.03568](https://arxiv.org/abs/1611.03568)
- 2016 CMS Collaboration, “Search for narrow resonances in dijet final states at $\sqrt{s} = 8$ TeV with the novel CMS technique of data scouting”, *Phys. Rev. Lett.* **117** (2016) 031802, [arXiv:1604.08907](https://arxiv.org/abs/1604.08907)
- 2016 CMS Collaboration, “Search for heavy resonances decaying to two Higgs bosons in final states containing four b quarks”, *Eur. Phys. J. C* **76** (2016) 371, [arXiv:1602.08762](https://arxiv.org/abs/1602.08762)
- 2015 CMS Collaboration, “Search for narrow resonances decaying to dijets in proton-proton collisions at $\sqrt{s} = 13$ TeV”, *Phys. Rev. Lett.* **116** (2016) 071801, [arXiv:1512.01224](https://arxiv.org/abs/1512.01224)
- 2015 CMS Collaboration, “Search for pair-produced vector-like B quarks in pp collisions at $\sqrt{s} = 8$ TeV”, *Phys. Rev. D* **93** (2016) 112009, [arXiv:1507.07129](https://arxiv.org/abs/1507.07129)
- 2015 CMS Collaboration, “Search for vector-like T quarks decaying to top quarks and Higgs bosons in the all-hadronic channel using jet substructure”, *JHEP* **06** (2015) 080, [arXiv:1503.01952](https://arxiv.org/abs/1503.01952)
- 2015 CMS Collaboration, “Search for resonances and quantum black holes using dijet mass spectra in proton-proton collisions at $\sqrt{s} = 8$ TeV”, *Phys. Rev. D* **91** (2015) 052009, [arXiv:1501.04198](https://arxiv.org/abs/1501.04198)
- 2014 CMS Collaboration, “Search for pair-produced resonances decaying to jet pairs in proton-proton collisions at $\sqrt{s} = 8$ TeV”, *Phys. Lett. B* **747** (2015) 98, [arXiv:1412.7706](https://arxiv.org/abs/1412.7706)

¹Izvor: Baza podataka INSPIRE-HEP <https://inspirehep.net>

- 2013 CMS Collaboration, “Search for narrow resonances and quantum black holes in inclusive and b-tagged dijet mass spectra from pp collisions at $\sqrt{s} = 7$ TeV”, *JHEP* **01** (2013) 013, [arXiv:1210.2387](#)
- 2011 CMS Collaboration, “Search for First Generation Scalar Leptoquarks in the $evjj$ Channel in pp Collisions at $\sqrt{s} = 7$ TeV”, *Phys. Lett. B* **703** (2011) 246, [arXiv:1105.5237](#)
- 2011 CMS Collaboration, “Missing transverse energy performance of the CMS detector”, *JINST* **6** (2011) 09001, [arXiv:1106.5048](#)
- 2011 CMS Collaboration, “Search for Pair Production of First-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV”, *Phys. Rev. Lett.* **106** (2011) 201802, [arXiv:1012.4031](#)
- 2007 V. Brigljević et. al., “Study of di-boson production with the CMS detector at LHC”, *J. Phys. G* **34** (2007) N269-N295

Publikacije kolaboracije CMS²

- 2016 CMS Collaboration, “Searches for narrow resonances decaying to dijets in pp collisions at $\sqrt{s} = 13$ TeV using 12.9 fb^{-1} ”, *CMS Physics Analysis Summary* **EXO-16-032**
- 2016 CMS Collaboration, “Identification of double-b quark jets in boosted event topologies”, *CMS Physics Analysis Summary* **BTV-15-002**
- 2016 CMS Collaboration, “Identification of b quark jets at the CMS Experiment in the LHC Run 2”, *CMS Physics Analysis Summary* **BTV-15-001**
- 2015 CMS Collaboration, “Search for Narrow Resonances using the Dijet Mass Spectrum with 42 pb^{-1} of pp Collisions at $\sqrt{s} = 13$ TeV”, *CMS Physics Analysis Summary* **EXO-15-001**
- 2015 CMS Collaboration, “First Results from Dijet Resonance Search using 37 pb^{-1} of proton-proton collisions at $\sqrt{s} = 13$ TeV”, *CMS Detector Performance Summary* **DP-2015-017**
- 2013 CMS Collaboration, “Search for pair-produced vector-like quarks of charge $-1/3$ in lepton+jets final state in pp collisions at $\sqrt{s} = 8$ TeV”, *CMS Physics Analysis Summary* **B2G-12-019**
- 2013 CMS Collaboration, “Performance of b tagging at $\sqrt{s} = 8$ TeV in multijet, $t\bar{t}$ and boosted topology events”, *CMS Physics Analysis Summary* **BTV-13-001**
- 2013 CMS Collaboration, “Search for Heavy Resonances Decaying into $b\bar{b}$ and bg Final States in pp Collisions at $\sqrt{s} = 8$ TeV”, *CMS Physics Analysis Summary* **EXO-12-023**
- 2012 CMS Collaboration, “Search for b-jet Resonances in pp Collisions at $\sqrt{s} = 7$ TeV”, *CMS Physics Analysis Summary* **EXO-11-008**
- 2010 CMS Collaboration, “Performance of Missing Transverse Energy Reconstruction in $\sqrt{s} = 900$ and 2360 GeV pp Collision Data”, *CMS Physics Analysis Summary* **JME-10-002**
- 2009 CMS Collaboration, “Offset Energy Correction for Cone Jets”, *CMS Physics Analysis Summary* **JME-09-003**

²Interno recenzirane i dostupne na <http://cdsweb.cern.ch/collection/CMS>

Međunarodne kolaboracije

- 2005.–Danas Kolaboracija CMS na CERN-u
2016.–Danas Kolaboracija RD50 na CERN-u

Članstva i ostale profesionalne aktivnosti

- Ožujak 2018.–danas Vrednovatelj godišnjih izvještaja projekata Hrvatske zaklade za znanost
Travanj 2016.–danas Hrvatsko fizikalno društvo
Veljača 2011.–travanj 2016. Američko fizikalno društvo

Organizacija međunarodnih skupova i radionica

- 13.–18. listopada 2019. Član lokalnog organizacijskog odbora za radionicu The 28th International Workshop on Vertex Detectors, Lopud, Hrvatska
30. travnja–3. svibnja 2019. Član lokalnog organizacijskog odbora za radionicu Game of Flavours - CMS Heavy Flavour Tagging Workshop 2019, Dubrovnik, Hrvatska
17.–22. rujna 2018. Član lokalnog organizacijskog odbora za konferenciju LHC Days in Split 2018, Split, Hrvatska
11.–13. travnja 2018. Član organizacijskog odbora za radionicu CMS Heavy Flavour Tagging Workshop 2018, Bruxelles, Belgija

Predavanja, seminari i poster

10. listopada 2020. “Production, calibration and performance of the layer 1 replacement modules for the CMS pixel detector”, Poster na VERTEX 2020: The 29th International Workshop on Vertex Detectors (virtualno)
27. veljače 2020. “Machine Learning in High Energy Physics”, Seminar Znanstvenog centra izvrsnosti za znanost o podacima i kooperativne sustave ACROSS–DataScience, Zagreb, Hrvatska
9. prosinca 2019. “CMS activities in Zagreb”, CROHEP Meeting, Zagreb, Hrvatska
16. listopada 2018. “Status report for Research Area 4: Multidisciplinary Data Intensive Applications, 4.1 Particle physics and astrophysics”, 3rd International Workshop on Data Science, Zagreb, Hrvatska
16. listopada 2018. “Usage of Deep Neural Networks to Tag Boosted Higgs Bosons Decaying into Bottom Quarks”, Poster na the 3rd International Workshop on Data Science, Zagreb, Hrvatska
17. rujna 2018. “Double Higgs boson searches overview”, LHC Days in Split, Split, Hrvatska
13. travnja 2018. “Status of the double-b tagger”, CMS Heavy Flavour Tagging Workshop 2018, Bruxelles, Belgija
13. listopada 2017. “Potraga za teškim rezonancijama i tamnom materijom pomoću hadronskih mlazova na LHC-u”, pozvano predavanje na 10. znanstvenom sastanku Hrvatskog fizikalnog društva, Baška, Otok Krk, Hrvatska
30. studenog 2016. Poster “Machine Learning in High Energy Physics”, First International Workshop on Data Science, Zagreb, Hrvatska
19. srpnja 2016. “Identification of b jets in boosted event topologies with CMS”, BOOST2016, Zürich, Švicarska

15. travnja 2015. "Multijet Searches at the LHC: Run 1 Highlights and Prospects for Run 2", UMD HEP Seminar, College Park, MD, SAD
5. studenog 2014. "Boosted Higgs and b-tagging and other tools/techniques", BSM Higgs Workshop @ LPC, Fermilab, SAD
19. kolovoza 2014. "CMS b and quark/gluon tagging", BOOST2014, University College London, London, Velika Britanija
3. i 24. listopada 2013. "b Tagging in Boosted Event Topologies (Parts I and II)", High Energy Experimental Seminar, Rutgers, The State University of New Jersey, Department of Physics & Astronomy, Piscataway, NJ, SAD
26. rujna 2013. "Top/Higgs Tagging at the LHC", LPC Workshop on Exotic Top Partners, Fermilab, SAD
12. studenog 2012. "LHC Searches with Jets and Photons", Chicago 2012 Workshop on LHC Physics, Chicago, IL, SAD
6. rujna 2012. "Search for Physics Beyond the Standard Model in Fully Hadronic Final States with the CMS Detector at the LHC", Seminar Zavoda za eksperimentalnu fiziku, Institut Ruđer Bošković, Zagreb, Hrvatska
11. srpnja 2012. "Latest Exotica Results with Jets in the Final State from the CMS Experiment", Santa Fe 2012 Summer Workshop "LHC Now", Santa Fe, NM, SAD
19. ožujka 2012. "Hadronic Exotica Searches at CMS", SEARCH Workshop, College Park, MD, SAD
9. lipnja 2011. "Search for Pair Production of First-Generation Scalar Leptoquarks with the CMS Experiment at CERN", High Energy Physics Seminar, Johns Hopkins University, Department of Physics & Astronomy, Baltimore, MD, SAD
31. svibnja 2011. "Search for Pair Production of First-Generation Scalar Leptoquarks with the CMS Experiment at CERN", High Energy Experimental Seminar, Rutgers, The State University of New Jersey, Department of Physics & Astronomy, Piscataway, NJ, SAD
1. svibnja 2011. "Search for Pair Production of First-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV", APS April Meeting, Anaheim, CA, SAD
30. listopada 2010. "Results of a Search for Pair Production of First-Generation Scalar Leptoquarks in pp Collisions at $\sqrt{s} = 7$ TeV", USLUO Annual Meeting, Fermilab, SAD

Projekti i priznanja

- Svibanj 2019.–danas Projekt Hrvatske zaklade za znanost DOK-01-2018 "Projekt razvoja karijera mladih istraživača - izobrazba novih doktora znanosti", doktorand: Saswat Mishra
- Lipanj 2017.–danas Suradnik na projektu Hrvatske zaklade za znanost IP-2016-06-3321 "Sto dvadeset i pet milijuna piksela za otkriće vezanja Higgsovog bozona na fermione i novih čestica na Velikom hadronskom sudarivaču", voditelj: dr. sc. Vuko Brigljević
17. prosinca 2019. Zajedno s kolegama Benjaminom Mesićem, Tatjanom Šušom i Vukom Brigljevićem među dobitnicima godišnje nagrade za najbolje znanstvene radove zaposlenika IRB-a u 2018. godini za znanstveni rad "Observation of Higgs boson decay to bottom quarks", *Phys. Rev. Lett.* **121** (2018) 121801, [arXiv:1808.08242](https://arxiv.org/abs/1808.08242)
3. svibnja 2019. Financijska potpora Ministarstva znanosti i obrazovanja za prijave na kompetitivne projekte na osnovu prijave na natječaj H2020-MSCA-IF-2018 (Ukupni iznos: 25 000 kn)

- 2017.–2018. Glavni istraživač s hrvatske strane na bilateralnom francusko-hrvatskom znanstveno-istraživačkom projektu u sklopu Programa integriranih akcija “Cogito” za 2017.–2018. pod nazivom “**ABC: Advance B** tagging in **CMS**”
25. travnja 2018. Financijska potpora Ministarstva znanosti i obrazovanja za prijave na kompetitivne projekte na osnovu prijave na natječaj H2020-MSCA-IF-2017 (Ukupni iznos: 40 000 kn)
5. ožujka 2018. “Pečat izvrsnosti” (Seal of Excellence) za projektni prijedlog poslan na Marie Skłodowska-Curie Actions natječaj H2020-MSCA-IF-2017 (Ukupna ocjena: 92.80%)
- Listopad 2017. Donacija grafičke kartice Titan Xp u sklopu [NVIDIA GPU Grant](#) programa za razvoj novih algoritama za b-označavanje baziranim na modernim metodama strojnog učenja
24. travnja 2017. Financijska potpora Ministarstva znanosti i obrazovanja za prijave na kompetitivne projekte na osnovu prijave na natječaj H2020-MSCA-IF-2016 (Ukupni iznos: 25 624 kn)
24. travnja 2017. “Pečat izvrsnosti” (Seal of Excellence) za projektni prijedlog poslan na Marie Skłodowska-Curie Actions natječaj H2020-MSCA-IF-2016 (Ukupna ocjena: 89.20%)
- Travanj 2011. Primio DPF Student Travel Award za odlazak na APS April Meeting
- Listopad 2007. Primio pohvalnicu u sklopu Ralph Myers Teaching Award za izvrsnost u nastavi u akademskoj godini 2006.–2007.
- 2002.–2006. Stipendija Ministarstva znanosti, obrazovanja i sporta za nadarene studente
2005. Stipendija Ministarstva znanosti, obrazovanja i sporta za pohađanje ljetne škole CERN Summer Student Programme

Škole i radionice

- 25.–29. rujna 2017. Pohađao radionicu 2nd International Summer School on Data Science (SSDS 2017), Split, Hrvatska
- 18.–22. srpnja 2016. Pohađao radionicu BOOST2016: 8th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches, Zürich, Švicarska
- 10.–14. kolovoza 2015. Pohađao radionicu BOOST2015: 7th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches, Chicago, IL, SAD
- 18.–22. kolovoza 2014. Pohađao radionicu BOOST2014: 6th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches, London, Ujedinjeno Kraljevstvo
- 11.–16. kolovoza 2013. Pohađao radionicu BOOST2013: 5th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches, Flagstaff, AZ, SAD
- Kolovoz 2008. Pohađao ljetnu školu CTEQ-MCnet Summer School on QCD Phenomenology and Monte Carlo Event Generators, Debrecen, Mađarska
- Ljeto 2005. Pohađao ljetnu školu na CERN-u

Iskustvo u nastavi i mentoriranju

- Lipanj 2019.–danas Mentor doktoranda Saswata Mishre
- Listopad 2020. Predavao “Introduction to MVA Methods” u sklopu kolegija [Metode statističke analize i raspoznavanja uzoraka s primjenama u fizici čestica](#) na doktorskom studiju fizike na PMF-FO Sveučilišta u Zagrebu

- Jesen 2018. U sklopu Jesenskih studentskih projekata na ZEF-u, mentorirao dodiplomskog studenta Jurja Ovčara na projektu pod nazivom “[Studija prolaska snopa iona kroz Token Bit Manager modula CMS piksel detektora](#)”
- Ožujak 2018. Predavao “Introduction to MVA Methods” u sklopu kolegija [Statistical methods in data analysis](#) na doktorskom studiju fizike na PMF-FO Sveučilišta u Zagrebu
- Jesen 2017. U sklopu Jesenskih studentskih projekata na ZEF-u, zajedno s Andreyem Starodumovim komentirao dodiplomskog studenta Ariana Iveca na projektu pod nazivom “[Proučavanje svojstava Readout Chipa CMS piksel detektora](#)”
14. srpnja 2017. Mentorirao Mateja Roguljića, **mag. phys.**, PMF-FO, Sveučilište u Zagrebu
Diplomski rad: Razvoj algoritma za identifikaciju hadronskih mlazova nastalih raspadom ultrarelativističkih Higgsovih bozona u dva b kvarka korištenjem nadograđenog CMS piksel detektora
8. srpnja 2016. Mentorirao Luciju Bajan, **mag. phys.**, PMF-FO, Sveučilište u Zagrebu
Diplomski rad: Potraga za rezonancijama u konačnim stanjima s dva hadronska mlaza na masama ispod 1 TeV u proton-proton sudarima na energiji centra mase od 13 TeV na Velikom hadronskom sudarivaču
- 2011.–2015. Kao poslijedoktorand na Sveučilištu Rutgers, mentorirao nekoliko dodiplomskih studenata i doktoranada

Mediji i popularizacija znanosti

28. lipnja 2020. Izjava za novinski članak “[Superudarač od 100 km](#)” u Večernjem listu
2. i 4. ožujka 2020. Mentor u sklopu “[Međunarodnog istraživačkog dana \(International Masterclasses – Hands on Particle Physics\)](#)” za učenike srednjih škola održanog na Institutu Ruđer Bošković u Zagrebu
- 16.–19. travnja 2019. Suorganizator i vodič tijekom posjeta zagrebačkih studenata fizike CERN-u
25. veljače i 11. ožujka 2019. Mentor u sklopu “[Međunarodnog istraživačkog dana \(International Masterclasses – Hands on Particle Physics\)](#)” za učenike srednjih škola održanog na Institutu Ruđer Bošković u Zagrebu
29. listopada 2018. Gost u emisiji “[Okrugli stol ponedjeljkom](#)” na Hrvatskom radiju 3
10. listopada 2018. Gost u emisiji “[Drag mi je Platon](#)” na Hrvatskom radiju 1
9. listopada 2018. Prilog u emisiji “[Znanstveni krugovi](#)” na HRT-u
8. svibnja 2018. Intervju uživo iz kontrolne sobe detektora CMS smještene na LHC Point 5 s učenicima iz Osnovne škole Stjepana Radića u Brestovcu Orehovičkom
19. ožujka 2018. Mentor u sklopu “[Međunarodnog istraživačkog dana \(International Masterclasses – Hands on Particle Physics\)](#)” održanog u Prvoj gimnaziji Varaždin
20. veljače 2018. Mentor u sklopu “[Međunarodnog istraživačkog dana \(International Masterclasses – Hands on Particle Physics\)](#)” za učenike srednjih škola održanog na Institutu Ruđer Bošković u Zagrebu
7. listopada 2017. Panelist na simpoziju organiziranom u sklopu festivala moderne umjetnosti [Touch Me Festival 2017: The Invisible Around Us](#) održanom u Zagrebu
- 27.–28. travnja 2017. Vodič tijekom posjeta zagrebačkih studenata fizike CERN-u
27. travnja 2017. Prilog u emisiji “[Treći element: Dimenzije prostora i materije](#)” na HRT-u
3. travnja 2017. Mentor u sklopu “[Međunarodnog istraživačkog dana \(International Masterclasses – Hands on Particle Physics\)](#)” održanog za učenike Biskupijske klasične gimnazije Ruđera Boškovića s pravom javnosti na Sveučilištu u Dubrovniku

24. ožujka 2017. “Tamna strana zvjezdanog neba (i može li nam ju LHC rasvijetliti)”, Gradska knjižnica i čitaonica Virovitica
24. ožujka 2017. Mentor u sklopu “Međunarodnog istraživačkog dana (International Masterclasses – Hands on Particle Physics)” održanog u Gimnaziji Petra Preradovića u Virovitici
10. i 31. ožujka 2017. Mentor u sklopu “Međunarodnog istraživačkog dana (International Masterclasses – Hands on Particle Physics)” za učenike srednjih škola održanog na Institutu Ruđer Bošković u Zagrebu
14. svibnja 2016. “Tamna strana zvjezdanog neba i kako nam ju LHC može obasjati”, Otvoreni dan na Institutu Ruđer Bošković u Zagrebu
25. ožujka 2016. “Busy bees”, Fermilab at Work
14. ožujka 2016. Mentor u sklopu “Međunarodnog istraživačkog dana (International Masterclasses – Hands on Particle Physics)” održanog u Gimnaziji Požega
19. veljače 2016. Mentor u sklopu “Međunarodnog istraživačkog dana (International Masterclasses – Hands on Particle Physics)” za učenike srednjih škola održanog na Institutu Ruđer Bošković u Zagrebu
15. veljače 2016. “Looking for signs: dijet resonances”, Fermilab at Work
- 23.–24. studenog 2015. Vodič tijekom posjeta zagrebačkih studenata fizike CERN-u
2. travnja 2015. “Dinko Ferencek (Ph.D. ’11, Physics) Talks Particle Physics”, UMD CMNS News
30. siječnja 2015. “One measurement, many implications”, Fermilab Today, Frontier Science Result: CMS
17. siječnja 2013. “A Search for ‘God particle’: A Story of Unification”, Hrvatska ura, Veleposlanstvo Republike Hrvatske u SAD, Washington, DC, SAD
25. veljače 2011. “First supersymmetry results from the LHC”, Fermilab Today, CMS Result
11. veljače 2011. “CMS joins the hunt for leptoquarks”, Fermilab Today, CMS Result of the Month
29. travnja 2010. Vodič tijekom posjeta hrvatskih studenata fizike CMS Analysis Centeru na CERN-u
19. lipnja 2009. Održao predavanje “Welcome o CERN” za grupu studenata strojarstva iz Zagreba u posjetu CERN-u
1. svibnja 2009. Vodič tijekom posjeta zagrebačkih studenata fizike detektoru CMS na CERN-u

Računalne vještine

Operativni sustavi	Iskustvo s administriranjem Linux i Microsoft Windows operativnih sustava
Uredski alati	L ^A T _E X, LibreOffice/OpenOffice, Microsoft Office
Programski jezici	C/C++, Python, osnovno poznavanje Fortrana na razini čitanja koda, osnovno iskustvo sa shell skriptama
Version control	Iskustvo sa CVS, SVN i Git alatima
Alati za analizu	ROOT, TMVA, Mathematica

Jezici

Hrvatski	Materinji
Engleski	Iskusni korisnik u pisanju, čitanju i govoru

Radno iskustvo unutar kolaboracije CMS (na engleskom)

ARC Duties	Served as an ARC member for HIN-12-003, EXO-12-042, JME-13-002, EXO-13-008, B2G-14-002, HIN-14-007, B2G-14-001, JME-14-002, HIN-15-012, B2G-16-003 (ARC Chair), JME-16-003, EXO-16-045 (ARC Chair), B2G-17-009, EXO-17-011, B2G-17-004 (ARC Chair), EXO-17-019, HIN-18-002, FTR-18-004, EXO-18-011, HIG-18-027, TOP-18-012, SMP-18-013, HIG-19-017, B2G-19-005, B2G-19-002 (ARC Chair) <ul style="list-style-type: none">◦ As part of the HIN-12-003 review, proposed a novel trigger combination algorithm that minimizes the statistical uncertainties for data collected using several prescaled triggers. The algorithm has later been used in HIN-14-007 and HIN-15-012
Editorial Duties	Served as the editor for the combined EXO-11-094 + EXO-11-008 paper
CWR Institutional Reviews	Contributed to the Institutional Review of HIG-11-027, BTV-12-001, EXO-12-016, BPH-13-004, HIG-13-004, HIG-13-021, SUS-13-019, HIG-13-024, EXO-12-053, B2G-16-013, HIN-16-006, B2G-17-005, SUS-19-013
October 2020–Present	Serving as a L3 co-convener of the Pixel Offline group
June 2019–Present	Involved in a measurement of the VHbb process using the full Run 2 data (HIG-20-001) <ul style="list-style-type: none">July 2017–September 2020: Involved in quality assurance of CMS pixel modules with the goal of building and testing modules for a replacement of the innermost layer of the Phase-1 CMS pixel detector. Work done in close collaboration with colleagues from Paul Scherrer Institute, ETH Zürich and Helsinki Institute of Physics.
January 2015–March 2020	Served as RECO and PAT contact for the BTV POG
October 2016–December 2019	Served as EOS space manager for the Exotica PAG <ul style="list-style-type: none">◦ Developed a set of software tools for managing the EXO EOS space at CERN (https://gitlab.cern.ch/ferencek/ExoEosTools)
December 2018–October 2019	Involved in the design, construction and operation of a test setup built at the ⁶⁰ Co irradiation facility at RBI for low-dose rate irradiation of the pixel detector readout chip prototypes for the HL-LHC. Work done in close collaboration with colleagues from CERN. <ul style="list-style-type: none">◦ One of my main tasks was the design and construction of an uninterrupted dry air supply for the test setup
September 2012–June 2019	Made key contributions to the development and commissioning of subset b tagging used in Higgs and top tagging algorithms employed in searches for new physics in boosted event topologies. Also made key contributions to the development and commissioning of double-b tagging algorithm used for Higgs tagging.
March 2018–April 2019	Participated in several beam test campaigns at the Tandem Van de Graaff accelerator at RBI to study single event upsets in the Token Bit Manager chip of the CMS pixel detector module <ul style="list-style-type: none">◦ Developed a software tools for running the data acquisition chain and catching single event upsets (https://gitlab.cern.ch/CMS-IRB/PixelTools)
May 2016–November 2018	Served as a Pixel Tracker Detector On-Call (Pixel DOC) expert shifter

- July 2014–June 2017 Involved in a search for dijet resonances in pp collisions at $\sqrt{s} = 13$ TeV
- January 2016–August 2016 Served as a L3 co-convenor of the Exotica Jets+X Working Group (successor of the Multijets Working Group)
- October 2014–December 2015 Served as a L3 co-convenor of the Exotica Multijets Working Group
- April 2012–July 2016 Maintained a “bump hunt” limit setting tool used in Exotica dijet analyses for setting Bayesian upper limits (more information available at <https://twiki.cern.ch/twiki/bin/view/CMS/DijetLimitCode>)
- July 2015 Prepared and led the *b*-tagging HATS@LPC held at Fermilab, USA
- January 2015 Prepared and led the *b* tagging and *EXO Dijet Resonances* exercises at the CMS Data Analysis School 2015 held at Fermilab, USA
- January 2013–December 2014 Served as a L3 co-convenor of the BTV POG Algorithms and Software Subgroup
- Maintained b-tagging software framework and documentation, served as RECO and PAT contact and was in charge of code integration
 - Contributed to studies of the b-tagging performance in the context of CMS detector upgrades for the HL-LHC
 - Made key contributions to the rewriting of the b-tagging software framework as part of the CMS preparations for LHC Run 2, making it possible to run b-tagging algorithms from a reduced event data format and retaining the same level of flexibility as in Run 1
 - Developed jet flavor definition based on the *ghost association* of generator-level hadrons/partons to reconstructed jets which is now the default jet flavor definition at CMS (more information available at <https://twiki.cern.ch/twiki/bin/view/CMSPublic/SWGGuideBTagMCTools>)
 - Wrote extensive documentation on applying b-tagging efficiency scale factors to simulated events (more information available at <https://twiki.cern.ch/twiki/bin/viewauth/CMS/BTagSFMethods>)
- September 2012–September 2013 Involved in a search for vector-like bottom quark partners in single-lepton final states (B2G-12-019)
- August 2012–December 2014 Involved in a search for paired dijets (EXO-12-052)
- December 2011–December 2013 Served as a b-tagging object expert for the Exotica PAG and an Exotica PAG contact person for the BTV POG
- September 2011–April 2013 Designed and carried out a search for b-jet resonances in pp collisions at $\sqrt{s} = 7$ TeV (EXO-11-008) and remained involved in a related search at $\sqrt{s} = 8$ TeV (EXO-12-023)
- January 2011 Prepared and led the *MET and High-MET Event Scan Exercise* at the CMS Data Analysis School 2011 held at Fermilab, USA
- 2009–2011 Involved in a search for pair production of first-generation scalar leptoquarks in *eejj* and *eνjj* channels
- Actively contributed to development of software analysis tools

- Acquired extensive experience with the Physics Analysis Toolkit (PAT)
 - Experience with producing private Monte Carlo samples and preparing generator card files for the official Monte Carlo production
 - Experience with all steps of the analysis, from ntuple making to producing final limit plots
 - Performed optimization of the final event selection criteria
 - Presented [pre-approval talk](#) for the *evjj* channel analysis
- 2010–2011 Involved in a scan of high-MET events
- From January to May 2011, coordinated a high-MET event scan effort within the MET Working Group (more information available at <https://twiki.cern.ch/twiki/bin/view/CMS/MissingETScanners>)
- November 2009–September 2010 Developed and maintained a JetMET history DQM tool (more information available at <https://twiki.cern.ch/twiki/bin/view/CMS/JetMETHistoryDQM>)
- February 2009–July 2010 Based at CERN performing the following HCAL service work activities:
- Responsible for HCAL pedestal tuning
 - Worked on HCAL DQM code development
 - HCAL test beam 2009: worked on wire chamber calibration and was in charge of setting up the test beam DQM (<https://twiki.cern.ch/twiki/bin/view/CMS/TestBeam2009>, <https://indico.cern.ch/event/65028/contribution/2/material/slides/0.pdf>)
 - During the last 12 months at CERN served as one of the on-call HCAL operations experts
 - During the last 4 months at CERN served as one of the HCAL Prompt Feedback Group contacts
 - In June 2010, served as an HCAL Operations Coordinator
 - Within the HCAL Noise Task Force, worked as one of the main developers of the HF noise cleaning algorithms later included in the standard event reconstruction
- Late 2009–Early 2010 Contributed to MET commissioning studies with first collision data at $\sqrt{s} = 900$ and 2360 GeV
- August 2009–End of 2009 Worked on DataMixer validation (more information available at <https://twiki.cern.ch/twiki/bin/view/CMS/DataMixerValidation>)
- Summer 2008–End of 2009 Worked on the offset (L1) jet energy correction (more information available at <https://twiki.cern.ch/twiki/bin/view/CMS/OffsetCorrection>)
- Presented [pre-approval](#) and [approval](#) talks for the JME-09-003 analysis

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