

Curriculum Vitae

Duncan L. Carlsmith

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Background University of Chicago - M.S. Physics (1980) ; Ph.D. Physics (1984) with Bruce Winstein.

Yale University - B.S. Physics and Math(1979), cum laude.
Richmond College, Richmond, Surrey, England (1974-5).

1999-present, Full Professor, University of Wisconsin-Madison
1993-99, Associate Professor, University of Wisconsin, Madison
1987-93, Assistant Professor, University of Wisconsin-Madison
1984-87, Project Associate, University of Wisconsin-Madison
1980-84, Research Assistant, University of Chicago

Research in elementary particle physics

LUX-Zeplin (LZ) Collaboration, 2014-present

Public websites: <http://lz.lbl.gov/>, <https://uwmadisondarkmatter.wordpress.com/>. Direct search for dark matter with a two-phase liquid xenon detector. Institutional Board, Publications and Speakers Committee, Skin Region Task Force, Geometry L4, CAD to GEANT scripting, simulations and code development.

Compact Muon Solenoid (CMS) Collaboration, CERN LHC, 1994-2015.

Public website: <http://cms.web.cern.ch/>. Physics in pp collisions at $\sqrt{s}=7$ TeV at the Large Hadron Collider (LHC). Endcap system design, cathode strip chamber R&D. Production planning. Laser alignment source and sensor installation, data acquisition hardware and software development and commissioning. Laser alignment system and Alignment Task Management, USCMS Election Committee 2008-9, Endcap Muon CSC commissioning and operations, CSC Data Quality monitor 2011-

Collider Detector Facility (CDF), Fermilab, 1984-present.

Public website: <http://www-cdf.fnal.gov/>. Physics in $p\bar{p}$ collisions at $\sqrt{s} = 1.8$ TeV, CDF I Forward Muon Spectrometer System construction and operation, Muon Group Convener, Muon Upgrade Group Leader, Annual Shift Captain/Scientific Coordinator, Executive Board. CDF II Intermediate Muon System design, fabrication, maintenance and operation.

Solenoidal Detector Collaboration (SDC), SSCL, 1991-1993.

Proton-proton collisions at $\sqrt{s} = 40$ TeV. Muon Chamber Selection Committee, Muon Technical Board, Air Core Toroid Task Force, Intermediate Muon System Task Leader, RPC Committee (1993), Muon Trigger Review Committee (1993), Institutional Board.

Superconducting Super Collider Subsystem R & D, 1986-1991.

Public website: <http://www.hep.net/ssc/>. 1986 Snowmass Muon Group Co-leader, WI SSC Workshop Group Leader, SSC Generic Muon Subsystem Design Activities, Drift Chamber Development, High Pressure Gas Calorimetry Development, Muon Detector and Facilities Design, Engineering and Integration, Fermilab Experiment T816: SSC Muon Subsystem Beam Tests.

Fermilab Experiment E617, 1980-1984.

Measurements of K^0 and \bar{K}^0 meson CP violation parameters and of the strange-quark magnetic moment.

External Grants and Contracts as Principal Investigator

Venturewell

National Collegiate Inventors and Innovators Alliance (NCIIA)/VentureWell, grant no.11659-14 Garage Physics (2014-17), mini-grant program for undergraduate entrepreneurs.

Department of Energy

Research in High Energy Physics (1988-2014)DE-AC0276ER00881)

Task T (CMS): R & D for Major Detector Subsystems Detectors (1992-2014) with Prof. S. Dasu, Prof. M. Herndon, and Prof. W. Smith.

Task E (CDF): Ultra High Energy Colliding Beam Physics (1988-2012) with Prof. Lee Pondrom.

Lawrence Berkeley Laboratory/SDC

SDC Muon Magnet and Chamber Preliminary Design (EOI)(1990)

SDC Muon Magnet and Chamber Preliminary Design (LOI)(1991)

Superconducting Super Collider Laboratory

Construction of Intermediate Muon System (1992-94) with Prof. Don Reeder

Iron Toroid Design and Muon Chamber Engineering (1990-1993)

Development of a Muon Subsystem for a Solenoidal Detector (1990-91) with Prof. Don Reeder.

Texas National Laboratory Research Commission

Intermediate Muon Detector for the SDC (1993)

Internal Grants and Contracts as Principal Investigator

Provost's Office, Educational Innovation Small Grants program, University of Wisconsin-Madison

Phone Labs: Mobile phones and new computation environments for low-cost active learning in physics (2017-18, 2018-19).

Flexible Resources for 3rd Semester Physics (2016), <https://www.youtube.com/user/flxblphy>, Video resources for Physics 307.

Flexible Physics Mobile (2013-14), <https://www.youtube.com/user/flxblphy>, Video resources for Physics 103-4, 109, 201-2, and 207-8.

Flexible Physics for the Google World (2011-12), Video-based learning objects for labs for undergraduates and teaching assistants in physics. <http://flexible.physics.wisc.edu>.

Office of Sustainability, University of Wisconsin-Madison

WI Make Sustain (2013-14) with Prof. E. Halverson and Prof. G. Venkatarmanan, Pilot interdisciplinary project-oriented learning in sustainability.

The Graduate School, University of Wisconsin-Madison

FY14 Bridge Funding for Sequestration Effect, LZ project development, UW PRJ82AJ (2014) CMS Engineering, Project 951668, Fund 135-3517 (1995)

Kemper Knapp Bequest, University of Wisconsin-Madison

Garage Physics (2014-15), Garage Physics (2016-17), Garage Physics (2018-19) support for project-based learning by undergraduates in Garage Physics.

Board of Visitors Fund for Undergraduate Research

(administrator) (2014-), project and travel support for undergraduate research in physics.

Leaves/Sabbaticals

Fall 2008 Sabbatical leave, CMS at CERN, Geneva, Switzerland.

Fall 2015 Sabbatical leave, LZ Design and UW program development.

University of Wisconsin teaching

Physics 103: General Physics I [†]	1997
Physics 104: General Physics II [†]	1998
Physics 107: Ideas of Modern Physics	1999, 2000-04, 2010
Physics 199: Directed Study	2018
Physics 201: General Physics I*	1994, 1997, 2001, 2006
Physics 202: General Physics II*	1989, 1996, 2012
Physics 205: Modern Physics for Engineers	2009
Physics 207: General Physics I**	1995, 2000
Physics 208: General Physics II**	2001, 2009
Physics 241: Modern Physics	2005, 2014, 2015, 2016
Physics 244: Modern Physics (primarily for ECE majors)	2007, 2008
Physics 247: A Modern Introduction to Physics I [°]	2010, 2012, 2016, 2017, 2018
Physics 248: A Modern Introduction to Physics II [°]	2011, 2013, 2017, 2018, 2019
Physics 249: A Modern Introduction to Physics III [°]	2011, 2013, 2014
Physics 299: Directed Study	1991, 2009, 2011, 2013, 2014, 2015 [°]
Physics 301: Physics Today ^{††}	1991,1993,1995,1997
Physics 307: Intermediate Laboratory ^{††}	1994
Physics 311: Classical Mechanics ^{††}	1989, 1990, 1995, 2007
Physics 321: Wave Motion and Optics ^{††}	1993
Physics 322: Electromagnetic Fields ^{††}	1988, 1992, 2002
Physics 415: Thermal Physics ^{††}	1991
Physics 531: Introduction to Quantum Mechanics ^{††}	1989, 1993, 1996
Physics 535: Elementary Particle Physics [#]	1988,1990,1992,1998, 2004, 2005, 2006
Physics 601: Scientific Presentation [#]	1994
Physics 990: Research in Physics [#]	1989-present
ECE 379: WI Make Sustainability	2013-14

† non-calculus for biologists, * calculus for engineers, ** calculus for biologists, ° accelerated for physics and astronomy majors, †† physics majors, # graduate level

Physics course descriptions are available at www.physics.wisc.edu/academic/undergrads/course-descriptions.

Graduate Student supervision

Dr. Jodi Lamoureux	CDF	PhD 1993	LBNL scientist
Dr. Liqun Zhang	CDF	PhD 1996	Federal Funded R&D Center (FFRDC),
Dr. James Olsen	CDF	PhD 1998	Princeton faculty
Dr. Shanhuei S. Chuang	CDF	PhD 2006	CMS postdoc
Daniel Cyr	CDF	MS 2001	Tektronix
Varsha Ramakrishnan	CDF	MS 2010	Tactile Inc.
Jeff Klukas	CMS	MS 2008	PhD with Prof. Herndon
Devin Taylor	CMS	MS 2013	PhD with Prof. Herndon
Ferdinand Schenck	LZ	summer 2014	Special student, S. Africa
Shaun Alsum	LZ	Jan-Aug 2015	PhD Candidate with Prof. Palladino
Kyriaki Chatzikyriakidou	2013-14	Delta Certif.	MS program UW-Madison School of Education

Undergraduate Research Scholars[†]

Joseph Sterle	2013/14	Foucault pendulum
Hanwook Chung	2013	3d food printing
William Milner	2013/14	3d-printing recycler
Daniel Montez	2014/15	3d printed trumpet
David Neiman	2013/14	3d printing recycling

Undergraduate Independent study[†]

Tyler Walters	2018	Pint-sized PET	
Avinash Narisetty	2018	Multicontrast Microscope	
James Sinclair	2018	Multicontrast Microscope	
Tayfield Reed	2018,19	Vector Borne Disease	
Yuhan Li	2018	Vector Borne Disease	
Jared Erb	2018	Muography	
Steven Carpenter	2018	Muography	
Bia Wang	2014	Muon tomography	WID Fellow
Anna Christensen	2014	Muon tomography	WID Fellow
Ahmed Saif	2014	quadcopters, EEG brain computer interfaces	Abu Dhabi
Tenzin Wangdon	2014	quadcopters, EEG BCI	EPIC Systems
Jacob Beres	2013	CERN CMS CSC fabrication	UW-Madison

[†] Listed are undergraduates working Garage Physics for UW credit with Carlsmith as advisor. Carlsmith advises and mentors many additional students working on projects in Garage. See <https://wiki.physics.wisc.edu/garage/Projects>.

Undergraduate Venturewell award winning entrepreneurs

Kali Kinziger	2017	BadgerLoop Pod 3	BadgerLoop.com
Jim McGlade	2016	Smart dust, Kynect	https://www.f6s.com/kynect (startup)
Daniel Litvak	2015	Weightup Solutions	WeightUpSolutions.com (startup)
Josh Cherek	2015	People Counter, Autolinkr (startup)	co-founder ZipMill Technologies (startup)
Felix Tsao	2015	Virtual Reality	NASA Goddard
Tieler Calazo	2015	BadgerLoop	APPLE
Brett Sjostrom	2015-	BadgerLoop	Boeing

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College of Letters and Sciences and University Committees

Faculty Advising Service	1989-92,1993-8
Letters and Science Advising Center	2006
Faculty Senate	1990-1995, 2004-2015
College of Letters and Science Senate	1990-1995, 2004-2015
Senate alternate	2001-2004
Honors Fellow	1994-7
Faculty Honors Committee	1995-97
Honors Faculty Mentor	1995
Physical Sciences Division Fellowships Committee	1996-8, 2000-4, 2006, 2007 (chair)
Wisconsin Space Grant Advisor	1995-2006
Hilldale Awards	2005
UW Madison Bouchet Selection Committee	2010-12
University General Education Committee	2011-14
Graduate Faculty Executive Committee (elected)	2012-16
Graduate School Academic Planning Council	2014-16
Teaching Academy Executive Committee	2014-present
Blended Learning Fellows	2016-2017
Committee on Undergraduate Recruitment, Admissions and Financial Aid (CURAFA)	2017-2020
Blended Learning Fellowship Program (BLFP) Active Teaching and Learning Fellow	2017

Department of Physics Committees

Physics Council	1997-2001
Ombudsperson	2005
Electronic Shop	2005
Nominating	1988-89
Intro. Courses/Labs/Lecture Rooms	99, '10, '11(chair), 2012-13
Intermediate and Advanced Courses	1989-90, 94
Mentor	1987-95
Honors	1989-2004, 2006
Preliminary Exam	1989-90, 2006, 2012, 2013
Awards	1989-94,2001
High Energy Advisor	1989-90
Physics Advisor	1998-2005
Qualifying Exam	1989,1998,1999, 2000, 2001
Introductory Seminar	1989-92
Graduate Admissions and Fellowships	'89-90,1'95, '96(chair), '99, '03, '04, '07(chair)
Degree Audit Record System Representative	1997-2006
Research Capital	1997-8 (chair)
Faculty Minority Liaison	1998-99
TA Policy and Review	2001, 2009 (chair), 2010-12
Salaries	2001
Climate and Diversity	2007 (originator and chair)
Physics certificate	2007 (originator)
Computing	2007
Student Awards	2010
Physics Learning Center Oversight Committee	2011
Educational Assessment Committee	2014-15
Independent Study Review	2014-15
Innovation and Garage Physics (originator, chair)	2013-17
Alumni Relations and Board of Visitors	2013-20
Curriculum Committee	2015-19
Non-physics Major Curriculum Committee	2015-17
Physics Major Curriculum Committee	2015-17(chair),2018-20
Laboratories	2017
Undergraduate Program Committee	2018
Garage Physics advisor	2018-20

University Activities, other

Physics REACH initiative core team	2015-2018
2016 Administrative Improvement Award(Receipt Reduction)	2016
Judge ERLC 100 Hour Challenge	2015
Audience Response System Evaluation working group	2015
3d-Print group(http://3dprinting.wisc.edu/)	2015-17
Teaching Academy Fellow	2012-2018
Community of Educational Support Technology member comets.wisc.edu	2010-present
UW Madison Information Technology Committee (alternate) www.itc.wisc.edu	2011-13
WARF Interdisciplinary Discovery Challenge Research Symposium (reviewer)	2013
Center for Technology Commercialization/Wisconsin Entrepreneurs Network (reviewer)	2013
UW Residential Entrepreneurship Residential Learning Community (speaker, advisor)	2013-17
UW Molecular Archaeology Group Scientific Advisory Group, expedition to Troy	2012-13
Office of Sustainability recycling green team	2013
Office of Quality Improvement Showcase 2012, "Flexible Physics," (speaker and poster presenter)	2012
Office of Quality Improvement Showcase 2013, "Garage Physics," (poster presentation)	2013
Educational Innovation funded projects (speaker)	2012,13
Teaching and Learning Symposium poster session	2013
Teaching and Learning Symposium Makerspace session organizer	2014
Teaching and Learning Symposium 3d-printing session organizer	2016
Student Business Incubator Advisor	2014-2016
Member Holtz Center for Science and Technology Studies	2014-present

Books

Duncan Carlsmith, *Particle Physics*, Addison-Wesley (2013). A 575+ page comprehensive graduate level textbook covering elementary particle physics and the standard model quantum field theory.

<http://www.pearsonhighered.com/educator/product/Particle-Physics/9780321676894.page>

Doing Physics with MATLAB acknowledgement (2018),

http://www.physics.usyd.edu.au/teach_res/mp/mphome.htm

Prizes, honors

EPS HEPP Prize 2013, to the CMS and ATLAS collaborations for the discovery of a Higgs boson as predicted by the Brout-Englert-Higgs mechanism.

UWMadisons 2016 Administrative Improvement Award ,UW-Madison Receipt Reduction Team, <https://news.wisc.edu/administrative-employees-honored-for-improving-the-campus-experience/>

Honored Instructor , UW-Housing Honored Instructor program, Spring 2018, Fall 2018

Professional Organizations

Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) (2018-), American Association of Physics Teachers (AAPT) Committee on Undergraduate Education (2018-21), National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) panelist (2018), American Association of Physics Teachers (AAPT) Committee on Technology (2014-17), AAPT Physics program reviewer (2017-), American Association for the Advancement of Science (2015-16), American Physical Society (APS) member(1984-present), DoE SBIR/STTR reviewer (2015,2019), USCMS election Committee (2008-09), LHC Users Organization candidate for Executive Committee 08-09, Advances in High Energy Physics editor (2010-17), Journal of Modern Physics and Applications (JMPA) editor (2012), American Journal of Physics editor (2013-present), Yale Alumni Schools Committee (2009-present), Venturewell Faculty Grants reviewer (2017, 2018), DOE Office of Science Graduate Student Research (SCGSR) programs 2018 Solicitation.

Recent Talks, Conferences, Workshops

Applications of deep learning in undergraduate physics, American Association of Physics Teachers (AAPT) Winter meeting 2020, Orlando, January 18-21 (Invited/contributed session organizer).

Accelerated computation for accelerated physics, GIREP-?ICPE-?EPEC-?MPTL 2019, Budapest, 1-5 Jul 2019, (poster).

Workshop Lead, Nanyang Technological University, Singapore, 21-23 May 2019. Workshop

on Particle Physics and analyzing data from CERN and LIGO experiments.

Accelerated computation for introductory physics, UW-Madison Showcase 2019, poster session, April. 2019, Madison WI.

More MATLAB labs with Mobile Phones and Public Data, 14 Jan. 2019, AAPT Winter Meeting 2019, Houston, TX.

New approaches to learning physics, Invited Plenary Speaker, Wisconsin Association of Physics Teachers (WAPT) Annual Meeting (2018), University of Wisconsin- Whitewater, Whitewater WI.

Smartphone Labs with MATLAB for accelerated physics, GIREP-MPTL, San Sebastian, 13 Jul 2018. Talk and session lead for Physics Teaching and Learning at University.

Computation in the Curriculum Workshop Lead, Nanyang Technological University, Singapore, 17-21 May 2018. Invited talks: Workshop Overview, Computation in an Introductory Physics Course, MATLAB Introduction, Mobile Phone Physics Labs, Garage Physics, Cell-phone Microscopy, Summary and Next Steps.

Garage Physics: Cultivating an entrepreneurial mindset in a physics lab, Session: Jonathan F. Reichert and Barbara Wolff-Reichert Award for Excellence in Advanced Laboratory Instruction (invited) , American Physical Society March Meeting, Los Angeles, CA , March 5-9, 2018. (Featured in Highlights of the 2018 American Physical Society March Meeting, Press Conference Tuesday 6 March 2018), <https://absuploads.aps.org/presentation.cfm?pid=13576>

Mobile Phone Physics Labs, Session: Low Cost Sensors for Labs (contributed), American Association of Physics Teachers Winter Meeting, Jan 2018, San Diego CA.

State of on-line Physics Courses & Building Online Communities of Learning (session organizer), American Association of Physics Teachers Winter Meeting, Jan 2018, San Diego CA.

Online data and modeling labs (contributed talk), Wisconsin section of AAPT (WAPT), joint meeting with ILAPT, Rockford IL, 21 Oct 2017 Innovation in Garage Physics (poster), Venturewell OPEN 2017, Washington DC, 24 March 2017.

Science and Innovation in Garage Physics, 2016 WAPT, UW Oshkosh, 29 Sep 2016.

Nutshell TOPHAT, Diigo, Overleaf, Piazza, 2016 WAPT, UW Oshkosh, 29 Sep 2016.

Big Science Data in the Classroom, session organizer and chair, 2016 AAPT Winter Meeting New Orleans, 12 Jan 2016.

Diigo, Active Teaching Lab, UW-Madison, 18 Sep 2015.

Open Labs for Innovation and Entrepreneurship in Physics, Beyond the First Year of College II (BFY II), University of Maryland, 23 July, 2015.

WriteLaTeX, Diigo, Piazza, and a CLC for Physics, Teaching and Learning Symposium, UW-Madison, 2014.

Flexible Physics Mobile: YouTube Bridges From Lecture to Lab, American Association of Physics Teachers (AAPT) Conference, Minneapolis, 20 Jul 2014.

Majors tracks for innovation and entrepreneurship, American Association of Physics Teachers (AAPT) Physics Department Chairs Conference, College Park Maryland, 28 May 2014

Flexible Physics Mobile - Videos Bridging Lecture and Lab for Higher Education, University of Wisconsin System Learning Technology Development Council Showcase, Madison WI, Apr 2014 .

Garage Physics- Project orientes learning in an open maker-style laboratory, University of Wisconsin System Learning Technology Development Council Showcase, Apr 2014, Madison Wisconsin

Open Innovation Labs for Physics Undergraduate Independent Research, American Physics

Society (APS) 2014 Savannah Georgia, talk and session leader.
WI Make Sustainability: Project-oriented physics sustainability education, American Association of Physics Teachers (AAPT) 2014 Orlando Florida, 6 Jan 2014.
Garage Physics: Flexible Space for Innovative Student-Focused Research and Education, American Association of Physics Teachers (AAPT) 2013 Portland Oregon, 7 July 2013.
Flexible Physics: A multimedia bridge from lecture to lab, American Association of Physics Teachers (AAPT) 2012, Philadelphia Pennsylvania, 30 July 2012.
Flexible Physics (poster), Conference on Laboratory Instruction Beyond the First Year Conference, 2012 Philadelphia, 26 July 2012.

Press

Classroom Clickers, UW-Madison Letters and Science, Spring 2019 Bulletin. Hunting Dark Matter, UW-Madison Letters and Science 2017 Annual Review, <http://ls.wisc.edu/news/hunting-dark-matter>
Dark matter detection receives 10-ton upgrade, 10 Mar 2017, UW-Madison News, <http://news.wisc.edu/dark-matter-detection-receives-10-ton-upgrade/>
Garage Physics, Letters and Science, 2015- 2016 Annual Review. Campus dining spots going receipt-free, <http://news.wisc.edu/24056>.
University dining halls go paperless, <https://badgerherald.com/news/2015/10/02/university-dining-halls-go-paperless/>
Students create inventions of the future in UW-Madison Garage, CH27 WKOW ABC news story, 29 Sep 2015 by Savanna Tomei, <http://www.wkow.com/story/30139090/2015/09/29/students-create-inventions-of-the-future-in-uw-madison-garage>
Garage Physics is a makerspace for undergraduate brainstorming, UW-Madison news, <http://news.wisc.edu/24040>.

Recent Outreach

AAPT Advanced Laboratory Physics Association (ALPHA) video production project lead (2017)
Advanced Labs for Physics Association videos (posted Fall 2017), See videos at https://www.compadre.org/advlabs/wiki/Muon_Mean_Lifetime, https://www.compadre.org/advlabs/wiki/Electron_Spin_Resonance, https://www.compadre.org/advlabs/wiki/Relativistic_Electrons, https://www.compadre.org/advlabs/wiki/Ultrafast_Optics_with_a_Fiber_Laser .
Dark Matter, Lectures, SoundWaves, Wisconsin Institute for Discovery, 9 Dec 2016 <https://discovery.wisc.edu/videos>.
Badger Startup Summit, Merlin Mentors Venfair tech/startup advisor, 22 Aug. 2016, Madison, WI.
SpaceX Hyperloop Design Weekend Judge, Texas A&M, <http://hyperloop.wpengine.com/>, Jan 29-30 2016.

Adopt-a-Physicist (adoptaphysicist.org) 2012, 2013

The Higgs Boson Particle, The God Particle, CERN, Dark Matter, WYOU TV Newsdesk with Jason Miller, interview 14 Aug. 2012.

National Society of Black Physicists and National Society of Hispanic Physicists Annual Meeting, Austin (2011), escort and recruiter

The Large Hadron Collider: A fantastic experiment, Rotary Club of Madison, Alliant Energy Center Exhibition Hall, 24 Feb 2010.

The Large Hadron Collider at CERN, Madison West Rotary Club, 30 Apr 2009.

Journal Publications

A list of journal publications with D. Carlsmith as co-author is available at:

<https://inspirehep.net/search?p=Carlsmith>

References

- [1] C Vuosalo, D Carlsmith, S Dasu, K Palladino and LUX-ZEPLIN Collaboration, “A tool to convert CAD models for importation into Geant4,” *Journal of Physics: Conference Series*, Volume 898, (2017 1742-6596 898 042024 ? <https://doi.org/10.1088/1742-6596/898/4/042024>
- [2] B. J. Mount *et al.* [The LZ Collaboration], “LUX-ZEPLIN (LZ) Technical Design Report,” arXiv:1703.09144 [physics.ins-det]. (2017)
- [3] C. Vuosalo, D. Carlsmith, S. Dasu, K. Palladino *et al.* [The LZ Collaboration], “A tool to convert CAD models for importation into Geant4,” arXiv:1702.04427 [physics.ins-det]. (2017)
- [4] D. S. Akerib *et al.* [The LZ Collaboration], “LUX-ZEPLIN (LZ) Conceptual Design Report,” arXiv:1509.02910 [physics.ins-det].
- [5] V. Khachatryan *et al.* [CMS Collaboration], “Search for the standard model Higgs boson produced through vector boson fusion and decaying to $b\bar{b}$,” *Phys. Rev. D* **92**, no. 3, 032008 (2015) [arXiv:1506.01010 [hep-ex]].
- [6] T. A. Aaltonen *et al.* [CDF Collaboration], “Measurement of the Production and Differential Cross Sections of W^+W^- Bosons in Association with Jets in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV,” *Phys. Rev. D* **91**, no. 11, 111101 (2015) [*Phys. Rev. D* **92**, no. 3, 039901 (2015)] [arXiv:1505.00801 [hep-ex]].
- [7] T. Aaltonen *et al.* [CDF Collaboration], “Measurement of the top-quark mass in the $t\bar{t}$ dilepton channel using the full CDF Run II data set,” *Phys. Rev. D* **92**, 032003 (2015) [arXiv:1505.00500 [hep-ex]].
- [8] T. A. Aaltonen *et al.* [CDF Collaboration], “First measurement of the forward-backward asymmetry in bottom-quark pair production at high mass,” *Phys. Rev. D* **92**, no. 3, 032006 (2015) [arXiv:1504.06888 [hep-ex]].
- [9] V. Khachatryan *et al.* [CMS Collaboration], “Search for a pseudoscalar boson decaying into a Z boson and the 125 GeV Higgs boson in $q\bar{q}b\bar{b}$ final states,” *Phys. Lett. B* **748**, 221 (2015) [arXiv:1504.04710 [hep-ex]].
- [10] V. Khachatryan *et al.* [CMS Collaboration], “Measurement of the Z boson differential cross section in transverse momentum and rapidity in protonproton collisions at 8 TeV,” *Phys. Lett. B* **749**, 187 (2015) [arXiv:1504.03511 [hep-ex]].

- [11] V. Khachatryan *et al.* [CMS Collaboration], “Search for the production of dark matter in association with top-quark pairs in the single-lepton final state in proton-proton collisions at $\sqrt{s} = 8$ TeV,” JHEP **1506**, 121 (2015) [arXiv:1504.03198 [hep-ex]].
- [12] T. A. Aaltonen *et al.* [CDF Collaboration], “Search for Resonances Decaying to Top and Bottom Quarks with the CDF Experiment,” Phys. Rev. Lett. **115**, no. 6, 061801 (2015) [arXiv:1504.01536 [hep-ex]].
- [13] V. Khachatryan *et al.* [CMS Collaboration], “Search for a Higgs Boson in the Mass Range from 145 to 1000 GeV Decaying to a Pair of W or Z Bosons,” arXiv:1504.00936 [hep-ex].
- [14] V. Khachatryan *et al.* [CMS Collaboration], “Search for Third-Generation Scalar Leptoquarks in the $t\tau$ Channel in Proton-Proton Collisions at $\sqrt{s} = 8$ TeV,” JHEP **1507**, 042 (2015) [arXiv:1503.09049 [hep-ex]].
- [15] V. Khachatryan *et al.* [CMS Collaboration], “Measurement of diffraction dissociation cross sections in pp collisions at $\sqrt{s} = 7$ TeV,” Phys. Rev. D **92**, no. 1, 012003 (2015) [arXiv:1503.08689 [hep-ex]].
- [16] V. Khachatryan *et al.* [CMS Collaboration], “Searches for third-generation squark production in fully hadronic final states in proton-proton collisions at $\sqrt{s} = 8$ TeV,” JHEP **1506**, 116 (2015) [arXiv:1503.08037 [hep-ex]].
- [17] G. Aad *et al.* [ATLAS and CMS Collaborations], “Combined Measurement of the Higgs Boson Mass in pp Collisions at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS Experiments,” Phys. Rev. Lett. **114**, 191803 (2015) [arXiv:1503.07589 [hep-ex]].
- [18] V. Khachatryan *et al.* [CMS Collaboration], “Study of W boson production in pPb collisions at $\sqrt{s_{NN}} = 5.02$ TeV,” arXiv:1503.05825 [nucl-ex].
- [19] V. Khachatryan *et al.* [CMS Collaboration], “Measurements of the ZZ production cross sections in the $2\ell 2\nu$ channel in proton-proton collisions at $\sqrt{s} = 7$ and 8 TeV and combined constraints on triple gauge couplings,” arXiv:1503.05467 [hep-ex].
- [20] V. Khachatryan *et al.* [CMS Collaboration], “Search for resonant pair production of Higgs bosons decaying to two bottom quark-antiquark pairs in proton-proton collisions at 8 TeV,” Phys. Lett. B **749**, 560 (2015) [arXiv:1503.04114 [hep-ex]].
- [21] V. Khachatryan *et al.* [CMS Collaboration], “Search for vector-like T quarks decaying to top quarks and Higgs bosons in the all-hadronic channel using jet substructure,” JHEP **1506**, 080 (2015) [arXiv:1503.01952 [hep-ex]].
- [22] V. Khachatryan *et al.* [CMS Collaboration], “Study of final-state radiation in decays of Z bosons produced in pp collisions at 7 TeV,” Phys. Rev. D **91**, no. 9, 092012 (2015) [arXiv:1502.07940 [hep-ex]].
- [23] V. Khachatryan *et al.* [CMS Collaboration], “Search for lepton-flavour-violating decays of the Higgs boson,” Phys. Lett. B **749**, 337 (2015) [arXiv:1502.07400 [hep-ex]].