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 Mathematics (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, 2014-19
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 collisons 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 2011-12

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
Physics 107: The Ideas of Modern Physics
Physics 115: Energy
Physics 198-9: Directed Study
Physics 201: General Physics††
Physics 207: General Physics††
Physics 241: Introduction to Modern Physics
Physics 247-9 A Modern Introduction to Physics††
Physics 298-9: Directed Study††
Physics 301: Physics Today††
Physics 307: Intermediate Laboratory††
Physics 311: Classical Mechanics††
Physics 321: Wave Motion and Optics††
Physics 322: Electromagnetic Fields††
Physics 415: Thermal Physics††
Physics 531: Introduction to Quantum Mechanics††
Physics 535: Elementary Particle Physics$^{\#}$
Physics 601: Scientific Presentation$^{\#}$
Physics 682: Senior Honors Thesis
Physics 900: Colloquium$^{\#}$
Physics 990: Research in Physics$^{\#}$
ECE 379: WI Make Sustainability

† non-calculus for biologists, * calculus for engineers, ** calculus for biologists, $^{\circ}$ 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 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	2015-16	BadgerLoop	Boeing

† Students advised and supported by Carlsmith through minigrants from Venturewell and the Board of Visitors Fund for Undergraduate Research.

Undergraduate Independent study

Eschaan Chaturvedi	2025	Interactive Live Scripts for Science Education (Open Source Internship Office internship	
Lewis Ballard	2022	Detecting hidden exoplanets through gravitational perturbations	
Sam Christianson	2021-22	Dynamics of particles in gas-filled fluids,* https://ls.wisc.edu/news/why-do-raisins-dance	
William Cerne	2021	Asteroid motion modeling	
Lennart Justin	2020	Machine learning for tick species identification	
Shenwei Yin	2020	Positron emission tomography	
Samuel Benda	2020	Positron emission tomography	
Victor Fernandez[†]	2020	Computational asteroid dynamics	
Eric Yin	2020	Computational asteroid dynamics	
Tayfield Reed	2018,19	Vector Borne Disease	
Tyler Walters	2018	Pint-sized PET	
Avinash Narisetty	2018	Multicontrast Microscope	
James Sinclair	2018	Multicontrast Microscope	
Yuhan Li	2018	Vector Borne Disease	
Jared Erb	2018	Muography	U. Maryland
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
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	

Listed are undergraduates working Garage Physics for Physics 299 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 Research Scholar. * Instructor of record for Physics Senior Honors Thesis with Professor Severio Spagnolie is in the math department.

College of Letters and Sciences and University Committees

Physics Department Teaching and Learning Liason	24-
Faculty Senate	1990-1995, 2004-2015,2024-
University Library Committee	2019-2023
Campus Planning Committee (ULC rep.)	2021-2023
Committee on Undergraduate Recruitment, Admissions and Financial Aid (CURAFA)	2017-2022, 23-24
Blended Learning Fellows	2016-2017
Blended Learning Fellowship Program (BLFP) Active Teaching and Learning Fellow	2017
Graduate Faculty Executive Committee (elected)	2012-16
Graduate School Academic Planning Council	2014-16
Teaching Academy Executive Committee	2014-16
College of Letters and Science Senate	1990-1995, 2004-2015
University General Education Committee	2011-14
UW Madison Bouchet Selection Committee	2010-12
Physical Sciences Division Fellowships Committee	1996-8, 2000-4, 2006, 2007 (chair)
Letters and Science Advising Center	2006
Wisconsin Space Grant Advisor	1995-2006
Hilldale Awards	2005
Senate alternate	2001-2004
Faculty Advising Service	1989-92,1993-8
Faculty Honors Committee	1995-97
Honors Faculty Mentor	1995
Honors Fellow	1994-7

Department of Physics Committees

Physics Education Innovation seminar co-lead (with Prof. Timbie), '24-	
Staff Recognition	24-
Ph.D. Graduate Recruiting (23-4)	
Visiting International Scholars Program (VISP) coordinator	2022-
Student Awards	2021-25(Chair 22-23)
Physics Major Curriculum Committee	2015-17(chair),2018-22,24-
Preliminary Exam	1989-90, 2006, 2012, 2013,24-
Graduate Admissions and Fellowships	'89-90,1'95, '96(chair), 22-23
Service Courses Committee	2019-23
Undergraduate Program Committee	2018
Garage Physics advisor	2018-20
Innovation and Garage Physics (originator, chair)	2013-17
Alumni Relations and Board of Visitors	2013-20
Non-physics Major Curriculum Committee	2015-17
Laboratories	2017
Educational Assessment Committee	2014-15
Independent Study Review	2014-15
	'99, '03, '04, '07(chair)
Intro. Courses/Labs/Lecture Rooms	99, '10, '11(chair), 2012-13
Degree Audit Record System Representative	1997-2006
Honors	1989-2004, 2006
Ombudsperson	2005
Electronic Shop	2005
Physics Advisor	1998-2005
Qualifying Exam	1989,1998,1999, 2000, 2001
Physics Council	1997-2001
Nominating	1988-89
Intermediate and Advanced Courses	1989-90, 94
Mentor	1987-95
Awards	1989-94,2001
High Energy Advisor	1989-90
Introductory Seminar	1989-92
Research Capital	1997-8 (chair)

Department of Physics Committees (continued)

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

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(h3dprinting.wisc.edu/) 2015-17
Teaching Academy Fellow 2012-2018
Community of Educational Support Technology member 2010-present
comets.wisc.edu
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 acknowledgment (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.
UW Madison 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

AAPT Committee on Membership and Benefits (2024-), AAPT Committee on Space Science and Astronomy Friends (2023-),Athens Institute for Education and Research (ATINER) member (23-), AAPT Task force on Data Analysis and Visualization (22-24), AAPT Special Projects and Philanthropic Advisory Board (2021-2022), Partnership for Integration of Computation in Undergraduate Physics (PICUP) member (2021-), AIP The Physics Teacher reviewer (2021-), American Association of Physics Teachers (AAPT) Committee on International Physics Education (2022-25), Groupe International de Recherche sur l'Enseignement de la Physique (GIREP) (2018-20), 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) program 2018 Solicitation.

Talks, Conferences, Workshops

1. D. Carlsmith, "Launching Physics Students Through Computation," University of Minnesota Physics Education Research Seminar(invited), 1 November, 2024

2. D. Carlsmith, "Singing Buddha Bowls and Wine Glasses: Modal Analysis of Found Objects," Joint UMN/Twin Cities + PICUP Regional Workshop 2024, U. Minn., 2 November, 2024

3. D. Carlsmith, "Integrating Computation into the Physics Major: The role of AI" (panelist) Joint UMN/Twin Cities + PICUP Regional Workshop 2024, U. Minn., 2 November, 2024

4. D. Carlsmith, (accepted) "Singing Buddha Bowls and Wine Glasses: Modal Analysis of Found Objects," American Association of Physics Teachers (AAPT) Winter Meeting, St Louis Jan 19-21, 2025

5. D. Carlsmith, "Finite Element Analysis for Physics Students," Fall 2024 Joint Meeting of the Wisconsin and Illinois Sections of the American Association of Physics Teachers (AAPT), October 11-12, 2024, Rockford University, Rockford, IL

6. D. Carlsmith, "Launching the Future Physicist with Live Scripts," special session of the Math & Optim Community of Practice, MathWorks Internal Seminar, September 23 2024

7. D. Carlsmith, "Asteroid Shape Explorer and other free computational tutorials in astronomy and physics," Global Hands-On Universe Conference 2024 (online), NUCLIO - Ncleo Interativo de Astronomia e Inovao em Educao, Portugal, September 23-27

8. D, Carlsmith, "Using Live Scripts to Explore Student or Public Data," Teaching Academy Best Practices Showcase, University of Wisconsin-Madison, 22 Aug 2024.

9. D. Carlsmith, "Computational tutorial in relativistic motion with constant acceleration," American Association of Physics Teachers (AAPT) Summer Meeting, Boston, July 6 - 11, 2024

10. D. Carlsmith, "New Technologies and Dangerous Questions in Astronomy Education", (workshop participant), University of North Carolina - Chapel Hill, 3-5 June (2024).

11. D. Carlsmith, "AI-assisted coding in STEM education," Teaching Academy Winter Retreat 2024, Madison WI, February 2, 2024.

12. D. Carlsmith, "Al in Physics Education - Part 1" (session moderator), American Association of Physics Teachers (AAPT) Winter Meeting, New Orleans, January 6 - 9, 2024

13. D. Carlsmith, "Al in Physics Education - Part 2" (session moderator), American Association of Physics Teachers (AAPT) Winter Meeting, New Orleans, January 6 - 9, 2024

14. D. Carlsmith, "Introducing Mobile Phone Astrometry," (invited) American Association of Physics Teachers (AAPT) Winter Meeting, New Orleans, January 6 - 9, 2024

15. D. Carlsmith, "MATLAB Live Scripts to explore the damped shaken string," American Association of Physics Teachers (AAPT) Winter Meeting, New Orleans, January 6 - 9, 2024

16. D. Carlsmith, "Simple Camera Calibration Using Stars," Wisconsin Association of Physics Teachers (WAPT) and SPS Zone 9 Annual Meeting, Marquette University, Milwaukee, November 3 - 4, 2023

17. D. Carlsmith, "The Future of Physics and Physics Education: A Round-Table Discussion on The Future of Sciences and Engineering Education," Panelist, 11th Annual International Conference on Physics, 17-20 July 2023, ATINER, Athens, Greece. (https://youtu.be/i5lD8W_wVR8?t=2448)

18. D. Carlsmith, "A Computational Curriculum for 1st-year University Physics Students with MATLAB," 11th Annual International Conference on Physics, 17-20 July 2023, ATINER, Athens, Greece.

19. D. Carlsmith "AI-based code generation for physicists," Partnership for the Integration of Computation into Undergraduate Physics (PICUP) webinar panelist and presenter, virtual PICUP panel on ChatGPT/AI and teaching physics, 9 May 2023 (virtual)

20. D. Carlsmith "AI-based code generation experiments and their implications for STEM education," American Association of Physics Teachers (AAPT) MN and Gopher State Physics Teachers (GO4St8) Joint Spring Meeting, Augsburg University, 22 April 2023 (virtual)

21. D. Carlsmith "Acceleration in free fall spark train audio analysis," American Association of Physics Teachers (AAPT) Winter Meeting in Portland, Oregon, January 14 - 17,2023

22. D. Carlsmith (session organizer)" Teaching Machine Learning," American Association of Physics Teachers (AAPT) Winter Meeting in Portland, Oregon, January 14 - 17,2023

23. D. Carlsmith (invited speaker and panelist),"1st Year University Physics With Computation," Teaching Computation With MATLAB 2022 (online), Science Education Resource Center at Carleton College (SERC), 16-18 Oct. 2022.

24. D. Carlsmith, (Day 1) (Workshop lead presentations) "Day 1 Computation for first-year physics majors/Introduction to MATLAB," (Day 2) "Day 2 Audio Analysis, Gravitational Waves, Exoplanet Transits, World's Fastest Simplest Train," (Day 3) "Data collection and analysis in High Energy Physics, Quarknet Muon Lifetime, ParticlePhysicsDataExplorer," Nanyang Technological University, Singapore, 19-22 July 2022

25. D. Carlsmith, "Live Script Tutorials in Computational Magnetism," American Association of Physics Teachers (AAPT) Summer Meeting in Grand Rapids, Michigan, Jul 9-13,2022

26. D. Carlsmith, "Ed Tech (Best Practices I)" (session organizer), American Association of Physics Teachers (AAPT) Summer Meeting in Grand Rapids, Michigan, Jul 9-13,2022

27. D. Carlsmith, "Ed Tech (Best Practices II)" (session organizer), American Association of Physics Teachers (AAPT) Summer Meeting in Grand Rapids, Michigan, Jul 9-13,2022

28. D. Carlsmith, "Sums of arbitrary dice for physics students", American Association of Physics Teachers (AAPT) Winter Meeting 2022, (virtual), 6 Jan- 9 Jan 2022 (contributed).

29. D. Carlsmith (participant) Partnership for Integration of Computation in Undergraduate Physics (PICUP) 2021 Virtual Capstone Conference 20-22 July 2021. (State of Integrating computation, Assessment, Department-wide computational integration (workshop), Preparing and submitting an exercise set and becoming a reviewer (workshop)

30. D. Carlsmith, "Computational Optics in First Year University Physics", American Association of Physics Teachers (AAPT) Summer Meeting 2021, Washington (virtual), 31 July- 4 August 2021 (contributed).

31. D. Carlsmith, "Analysis of open data in physics education," Workshop Lead, Nanyang Technological University, Singapore, 10-14 May 2021. "NTU2021 Introduction'" "Elementary Particles", "Introduction to MATLAB", "CMS Data Analysis","Asteroids", "Planet Ephemeris"

32. D. Carlsmith, "Remote introductory physics lab," UW-Madison Showcase 2021, poster session, 8 April. 2021, https://showcase.wisc.edu/wp-content/uploads/sites/1289/2021/04/Electronic-Posters-for-web.2021_compressed.pdf , https://showcase.wisc.edu/poster-flash-talks/ (see minute 37:54)

33. D. Carlsmith, "Explorations of ephemerides by first-year physics and astronomy students," American Association of Physics Teachers (AAPT) Winter Meeting 2021 (online), 10 Jan 2021

34. D. Carlsmith, "Advanced fitting and uncertainty analysis in introductory physics," American Association of Physics Teachers (AAPT) Winter Meeting 2021 (online), 10 Jan 2021

35. D. Carlsmith, "1st Year Physics with MATLAB, Partnership for Integration of Computation into Undergraduate Physics (PICUP) Spring Webinar Series: Computation in Undergrad Physics with an Emphasis on Using MATLAB, 28 Jan 2021

36. D. Carlsmith, "1st Year Physics with MATLAB," Teaching Computation Online with MATLAB workshop, Science Education Research Center (SERC),11 Oct. 2020 invited.

37. D. Carlsmith, "Visualization of the electric field of a charge undergoing arbitrary motion," American Association of Physics Teachers (AAPT) Winter Meeting 2020, Orlando 20 Jan 2020 (contributed)

38. D. Carlsmith, "LIGO Analysis in a few lines of MATLAB code," American Association of Physics Teachers (AAPT) Winter Meeting 2020, Orlando 20 Jan 2020 (poster session)

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

40. D. Carlsmith, "Foundational computation for first-year physics undergraduates," part of Teaching Computation in the Sciences Using MATLAB: Matlab Workshop 2019:Essays, Teaching Computation in the Sciences using MATLAB, https://serc.carleton.edu/teaching_computation/workshop_2019/essays/231296.html.

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

42. D. Carlsmith, "Undergraduate education," Nanyang Technological University, Singapore, 21-23 May 2019. Workshop on Particle Physics and analyzing data from CERN and LIGO experiments.(Workshop lead)

43. D. Carlsmith, "Accelerated computation for introductory physics," UW-Madison Showcase 2019, poster session, April. 2019, Madison WI. https://showcase.wisc.edu/wp-content/uploads/sites/1289/2019/12/Electronic-Posters.2019_for-web.pdf

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

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

46. D. Carlsmith, "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.

47. D. Carlsmith,"Workshop Overview," "Computation in an Introductory Physics Course," "MATLAB Introduction, Mobile Phone Physics Labs," "Garage Physics," "Cellphone Microscopy," "Summary and Next Steps", Computation in the Curriculum Workshop Lead, Nanyang Technological University," Singapore, 17-21 May 2018. (Workshop in undergraduate education lead)

48. D. Carlsmith, "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

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

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

51. D. Carlsmith, "Online data and modeling labs," (contributed talk), Wisconsin section of AAPT (WAPT), joint meeting with ILAPT, Rockford IL, 21 Oct 2017

52. D. Carlsmith, "Innovation in Garage Physics," (poster), Venturewell OPEN 2017, Washington DC, 24 March 2017.

53. D. Carlsmith, "Science and Innovation in Garage Physics," 2016 WAPT, UW Oshkosh, 29 Sep 2016.

54. D. Carlsmith, "Nutshell TOPHAT, Diigo, Overleaf, Piazza," 2016 WAPT, UW Oshkosh, 29 Sep 2016.

55. 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.

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

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

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

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

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

61. D. Carlsmith, "Garage Physics- Project orients learning in an open maker-style laboratory," University of Wisconsin System Learning Technology Development Council Showcase, Apr 2014, Madison Wisconsin

62. D. Carlsmith, "Open Innovation Labs for Physics Undergraduate Independent Research," American Physics Society (APS) 2014 Savannah Georgia, talk and session leader.

63. D. Carlsmith, "WI Make Sustainability: Project-oriented physics sustainability education," American Association of Physics Teachers (AAPT) 2014 Orlando Florida, 6 Jan 2014.

64. D. Carlsmith, "Garage Physics: Flexible Space for Innovative Student-Focused Research and Education," American Association of Physics Teachers (AAPT) 2013 Portland Oregon, 7 July 2013.

65. D. Carlsmith, "Flexible Physics: A multimedia bridge from lecture to lab, "American Association of Physics Teachers (AAPT) 2012, Philadelphia Pennsylvania, 30 July 2012.

66. D. Carlsmith, "Flexible Physics," (poster) Conference on Laboratory Instruction Beyond the First Year Conference, 2012 Philadelphia, 26 July 2012.

Press

By dropping, throwing smartphones, students key into a 21st-century approach to physics, University of Wisconsin-Madison news, 27 July 2019, https://news.wisc.edu/by-dropping-throwing-smart-phones-students-key-into-a-21st-century-approach-to-physics/

Classroom Clickers, UW-Madison Letters and Science, Spring 2019 Bulletin.

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