Carl E Wieman

List of Publications by Year
in descending order

70 papers	6,911 citations	109321 35 h-index	110387 64 g-index
72 all docs	72 docs citations	72 times ranked	4783 citing authors

#	Article	IF	Citations
1	Improved Learning in a Large-Enrollment Physics Class. Science, 2011, 332, 862-864.	12.6	857
2	Dynamics of collapsing and exploding Boseâ€"Einstein condensates. Nature, 2001, 412, 295-299.	27.8	670
3	Using diode lasers for atomic physics. Review of Scientific Instruments, 1991, 62, 1-20.	1.3	664
4	Atomâ€"molecule coherence in a Boseâ€"Einstein condensate. Nature, 2002, 417, 529-533.	27.8	600
5	Formation of Bright Matter-Wave Solitons during the Collapse of Attractive Bose-Einstein Condensates. Physical Review Letters, 2006, 96, 170401.	7.8	416
6	Collective behavior of optically trapped neutral atoms. Physical Review Letters, 1990, 64, 408-411.	7.8	292
7	Development and Validation of Instruments to Measure Learning of Expertâ€Like Thinking. International Journal of Science Education, 2011, 33, 1289-1312.	1.9	282
8	PhET: Simulations That Enhance Learning. Science, 2008, 322, 682-683.	12.6	252
9	PhET: Interactive Simulations for Teaching and Learning Physics. Physics Teacher, 2006, 44, 18-23.	0.3	199
10	Atom cooling, trapping, and quantum manipulation. Reviews of Modern Physics, 1999, 71, S253-S262.	45.6	194
11	Enhancing Diversity in Undergraduate Science: Self-Efficacy Drives Performance Gains with Active Learning. CBE Life Sciences Education, 2017, 16, ar56.	2.3	194
12	Large-scale comparison of science teaching methods sends clear message. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 8319-8320.	7.1	185
13	Teaching critical thinking. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11199-11204.	7.1	135
14	Evanescent-wave guiding of atoms in hollow optical fibers. Physical Review A, 1996, 53, R648-R651.	2.5	133
15	Why Not Try a Scientific Approach to Science Education?. Change, 2007, 39, 9-15.	0.5	132
16	Modifying and Validating the Colorado Learning Attitudes about Science Survey for Use in Chemistry. Journal of Chemical Education, 2008, 85, 1435.	2.3	120
17	Multiply loaded, ac magnetic trap for neutral atoms. Physical Review Letters, 1991, 67, 2439-2442.	7.8	105
18	The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science. CBE Life Sciences Education, 2014, 13, 552-569.	2.3	102

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19	432-nm source based on efficient second-harmonic generation of GaAlAs diode-laser radiation in a self-locking external resonant cavity. Optics Letters, 1989, 14, 731.	3.3	87
20	Comparative Cognitive Task Analyses of Experimental Science and Instructional Laboratory Courses. Physics Teacher, 2015, 53, 349-351.	0.3	73
21	Inexpensive laser cooling and trapping experiment for undergraduate laboratories. American Journal of Physics, 1995, 63, 317-330.	0.7	72
22	Demographic gaps or preparation gaps?: The large impact of incoming preparation on performance of students in introductory physics. Physical Review Physics Education Research, 2019, 15, .	2.9	70
23	Oersted Medal Lecture 2007: Interactive simulations for teaching physics: What works, what doesnâ€™t, and why. American Journal of Physics, 2008, 76, 393-399.	0.7	64
24	Student Interpretations of Equations Related to the First Law of Thermodynamics. Journal of Chemical Education, 2010, 87, 750-755.	2.3	63
25	Value added or misattributed? A multi-institution study on the educational benefit of labs for reinforcing physics content. Physical Review Physics Education Research, 2017, 13, .	2.9	63
26	The Surprising Impact of Seat Location on Student Performance. Physics Teacher, 2005, 43, 30-33.	0.3	56
27	Psychological insights for improved physics teaching. Physics Today, 2014, 67, 43-49.	0.3	55
28	Precision measurement of the hyperfine structure of theCs1336P3/2state. Physical Review A, 1988, 38, 1616-1617.	2.5	48
29	Analyzing the many skills involved in solving complex physics problems. American Journal of Physics, 2015, 83, 459-467.	0.7	47
30	Precision measurement of the Stark shift in the 6S1/2â†'6P3/2cesium transition using a frequency-stabilized laser diode. Physical Review A, 1988, 38, 162-165.	2.5	46
31	Atomic beam collimation using a laser diode with a self-locking power-buildup cavity. Optics Letters, 1988, 13, 357.	3.3	44
32	A powerful tool for teaching science. Nature Physics, 2006, 2, 290-292.	16.7	43
33	Examining and contrasting the cognitive activities engaged in undergraduate research experiences and lab courses. Physical Review Physics Education Research, 2016, 12, .	2.9	38
34	Physics Exams that Promote Collaborative Learning. Physics Teacher, 2014, 52, 51-53.	0.3	37
35	Tools for Science Inquiry Learning: Tool Affordances, Experimentation Strategies, and Conceptual Understanding. Journal of Science Education and Technology, 2018, 27, 215-235.	3.9	30
36	Developing scientific decision making by structuring and supporting student agency. Physical Review Physics Education Research, 2020, 16, .	2.9	30

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37	Educational transformation in upper-division physics: The Science Education Initiative model, outcomes, and lessons learned. Physical Review Physics Education Research, 2015, 11, .	1.7	29
38	The half empty question for socio-cognitive interventions.. Journal of Educational Psychology, 2016, 108, 397-404.	2.9	26
39	Concepts first, jargon second improves student articulation of understanding. Biochemistry and Molecular Biology Education, 2016, 44, 12-19.	1.2	24
40	A Detailed Characterization of the Expert Problem-Solving Process in Science and Engineering: Guidance for Teaching and Assessment. CBE Life Sciences Education, 2021, 20, ar43.	2.3	24
41	Boseâ€"Einstein Condensation in a Dilute Gas: The First 70 Years and some Recent Experiments (Nobel) Tj ETQq1 1 0.784314 rgBT /Ove	2.1	23
42	Expertise in University Teaching & the Implications for Teaching Effectiveness, Evaluation & Training. Daedalus, 2019, 148, 47-78.	1.8	22
43	The Similarities Between Research in Education and Research in the Hard Sciences. Educational Researcher, 2014, 43, 12-14.	5.4	18
44	Perspectives on Active Learning: Challenges for Equitable Active Learning Implementation. Journal of Chemical Education, 2022, 99, 1691-1699.	2.3	16
45	Template for teaching and assessment of problem solving in introductory physics. Physical Review Physics Education Research, 2020, 16, .	2.9	14
46	The Richtmyer Memorial Lecture: Boseâ€"Einstein Condensation in an Ultracold Gas. American Journal of Physics, 1996, 64, 847-855.	0.7	12
47	Making On-line Science Course Materials Easily Translatable and Accessible Worldwide: Challenges and Solutions. Journal of Science Education and Technology, 2012, 21, 1-10.	3.9	12
48	Resource Letter TNAâ€1: Trapping of neutral atoms. American Journal of Physics, 1996, 64, 18-20.	0.7	10
49	Evaluating the problem-solving skills of graduating chemical engineering students. Education for Chemical Engineers, 2021, 34, 68-77.	4.8	10
50	Galvanizing Science Departments. Science, 2009, 325, 1181-1181.	12.6	5
51	The Connection Between Teaching Methods and Attribution Errors. Educational Psychology Review, 2016, 28, 645-648.	8.4	4
52	Exploring bias in mechanical engineering students' perceptions of classmates. PLoS ONE, 2019, 14, e0212477.	2.5	4
53	Response to â€œInterpret with Caution: COPUS Instructional Styles May Not Differ in Terms of Practices That Support Student Learning,â€•by Melody McConnell, Jeffrey Boyer, Lisa M. Montplaisir, Jessie B. Arneson, Rachel L. S. Harding, Brian Farlow, and Erika G. Offerdahl. CBE Life Sciences Education, 2021, 20, le1.	2.3	4
54	What factors impact student performance in introductory physics?. PLoS ONE, 2020, 15, e0244146.	2.5	4

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55	Editorial for special issue on concept inventories in computing. Computer Science Education, 2014, 24, 250-252.	3.7	3
56	Validated diagnostic test for introductory physics course placement. Physical Review Physics Education Research, 2021, 17, .	2.9	3
57	Characterizing the mathematical problem-solving strategies of transitioning novice physics students. Physical Review Physics Education Research, 2020, 16, .	2.9	3
58	Parity nonconservation in atoms; past work and trapped atom future. Hyperfine Interactions, 1993, 81, 27-34.	0.5	2
59	Mixed results from a multiple regression analysis of supplemental instruction courses in introductory physics. PLoS ONE, 2021, 16, e0249086.	2.5	2
60	Comment on â€œBenefits of completing homework for students with different aptitudes in an introductory electricity and magnetism courseâ€. Physical Review Physics Education Research, 2016, 12, .	2.9	2
61	Preparing physics students for being marooned on a desert island (and not much else). Physics Teacher, 2017, 55, 68-68.	0.3	1
62	FINDING THE MISSING NONPOLYPOID (FLAT AND DEPRESSED) COLORECTAL NEOPLASM (NP-CRN): A NEW EDUCATIONAL STRATEGY FOR VISUAL DISCRIMINATION BASED ON EXPERT PERFORMANCE. Gastrointestinal Endoscopy, 2022, 95, AB177.	1.0	1
63	The creation of Bose-Einstein condensation in a cold vapor. European Physical Journal D, 1996, 46, 2923-2927.	0.4	0
64	Boseâ€“Einstein Condensation in an Ultracold Gas. International Journal of Modern Physics B, 1997, 11, 3281-3296.	2.0	0
65	Minimize Your Mistakes by Learning from Those of Others. Physics Teacher, 2005, 43, 252-253.	0.3	0
66	Evidence-Based Principles for Worksheet Design. Physics Teacher, 2021, 59, 402-403.	0.3	0
67	What factors impact student performance in introductory physics?. , 2020, 15, e0244146.		0
68	What factors impact student performance in introductory physics?. , 2020, 15, e0244146.		0
69	What factors impact student performance in introductory physics?. , 2020, 15, e0244146.		0
70	What factors impact student performance in introductory physics?. , 2020, 15, e0244146.		0