Roberto C Mancini

List of Publications by Citations

75 papers	1,668 citations	20 h-index	39 g-index
80 ext. papers	1,789 ext. citations	3.3 avg, IF	3.71 L-index

#	Paper	IF	Citations
75	A higher-than-predicted measurement of iron opacity at solar interior temperatures. *Nature*, **2015**, 517, 56-9	50.4	262
74	Isochoric Heating of Solid Aluminum by Ultrashort Laser Pulses Focused on a Tamped Target. *Physical Review Letters*, **1999**, 82, 4843-4846	7.4	167
73	Hot dense capsule-implosion cores produced by Z-pinch dynamic Hohlraum radiation. *Physical Review Letters*, **2004**, 92, 085002	7.4	91
72	X-ray spectroscopy of high-energy density inertial confinement fusion plasmas. *Physics of Fluids B*, **1993**, 5, 3328-3336		65
71	Escape factors for Stark-broadened line profiles. *Journal of Physics B: Atomic and Molecular Physics*, **1987**, 20, 2975-2987		56
70	Dynamic hohlraum radiation hydrodynamicsa). *Physics of Plasmas*, **2006**, 13, 056301	2.1	55
69	Effects of ion dynamics and opacity on Stark-broadened argon line profiles. *Physical Review E*, **1996**, 53, 1042-1050	2.4	55
68	ZAPP: The Z Astrophysical Plasma Properties collaborationa). *Physics of Plasmas*, **2014**, 21, 056308	2.1	53
67	Modeling of population kinetics of plasmas that are not in local thermodynamic equilibrium, using a versatile collisional-radiative model based on analytical rates. *Physical Review E*, **2009**, 80, 056402	2.4	48
66	Time-resolved spectroscopic measurements of high density in Ar-filled microballoon implosions. *Physical Review Letters*, **1989**, 63, 267-270	7.4	42
65	Multispectral x-ray imaging with a pinhole array and a flat Bragg mirror. *Review of Scientific Instruments*, **2005**, 76, 073708	1.7	39
64	Ion Dynamics Effect on Stark-Broadened Line Shapes: A Cross-Comparison of Various Models. *Atoms*, **2014**, 2, 299-318	2.1	38
63	Accretion disk dynamics, photoionized plasmas, and stellar opacities. *Physics of Plasmas*, **2009**, 16, 041001	2.1	35
62	Theoretical and experimental studies of laser-produced plasmas driven by high-intensity femtosecond laser pulses. *Physics of Plasmas*, **1997**, 4, 1811-1817	2.1	32
61	Dopant radiative cooling effects in indirect-drive Ar-doped capsule implosion experiments. *Physical Review E*, **2005**, 72, 066403	2.4	29
60	Processing of multi-monochromatic x-ray images from indirect drive implosions at OMEGA. *Review of Scientific Instruments*, **2003**, 74, 1951-1953	1.7	28
59	Spectroscopic determination of temperature and density spatial profiles and mix in indirect-drive implosion cores. *Physical Review E*, **2007**, 76, 056403	2.4	26

58	Absorption spectroscopy of a laboratory photoionized plasma experiment at Z. *Physics of Plasmas*, **2014**, 21, 031203	2.1	24
57	Control and diagnosis of temperature, density, and uniformity in x-ray heated iron/magnesium samples for opacity measurementsa). *Physics of Plasmas*, **2014**, 21, 056502	2.1	21
56	Observation of early shell-dopant mix in OMEGA direct-drive implosions and comparisons with radiation-hydrodynamic simulations. *Physics of Plasmas*, **2014**, 21, 052706	2.1	21
55	Benchmark Experiment for Photoionized Plasma Emission from Accretion-Powered X-Ray Sources. *Physical Review Letters*, **2017**, 119, 075001	7.4	20
54	Systematic Fuel Cavity Asymmetries in Directly Driven Inertial Confinement Fusion Implosions. *Physical Review Letters*, **2017**, 118, 135001	7.4	20
53	Investigation of a polychromatic tomography method for the extraction of the three-dimensional spatial structure of implosion core plasmas. *Physics of Plasmas*, **2012**, 19, 082705	2.1	20
52	Laser absorption, mass ablation rate, and shock heating in direct-drive inertial confinement fusiona). *Physics of Plasmas*, **2007**, 14, 056305	2.1	20
51	Processing of spectrally resolved x-ray images of inertial confinement fusion implosion cores recorded with multimonochromatic x-ray imagers. *Journal of Applied Physics*, **2011**, 109, 093303	2.5	19
50	The dense Z-pinch program at the University of Nevada, Reno **1997**,		19
49	Comparison of genetic-algorithm and emissivity-ratio analyses of image data from OMEGA implosion cores. *Review of Scientific Instruments*, **2008**, 79, 10E921	1.7	19
48	Direct asymmetry measurement of temperature and density spatial distributions in inertial confinement fusion plasmas from pinhole space-resolved spectra. *Physics of Plasmas*, **2014**, 21, 050702	2.1	18
47	Al 1s-2p absorption spectroscopy of shock-wave heating and compression in laser-driven planar foil. *Physics of Plasmas*, **2009**, 16, 052702	2.1	17
46	Application of fall-line mix models to understand degraded yield. *Physics of Plasmas*, **2008**, 15, 072702	2.1	17
45	Development of two mix model postprocessors for the investigation of shell mix in indirect drive implosion cores. *Physics of Plasmas*, **2007**, 14, 072705	2.1	17
44	Observation of interspecies ion separation in inertial-confinement-fusion implosions. *Europhysics Letters*, **2016**, 115, 65001	1.6	17
43	Laboratory measurements of resistivity in warm dense plasmas relevant to the microphysics of brown dwarfs. *Nature Communications*, **2015**, 6, 8742	17.4	16
42	Measurements of core and compressed-shell temperature and density conditions in thick-wall target implosions at the OMEGA laser facility. *Physical Review E*, **2011**, 83, 066408	2.4	16
41	Multispectral x-ray imaging for core temperature and density maps retrieval in direct drive implosions. *Review of Scientific Instruments*, **2006**, 77, 10E303	1.7	16

40	Kinetic modeling of x-ray laser-driven solid Al plasmas via particle-in-cell simulation. *Physical Review E*, **2017**, 95, 063203	2.4	15
39	Analysis of time-resolved argon line spectra from OMEGA direct-drive implosions. *Review of Scientific Instruments*, **2008**, 79, 10E310	1.7	14
38	Spectroscopic analysis of Ar-doped laser-driven implosions. *Review of Scientific Instruments*, **1995**, 66, 755-757	1.7	14
37	Kinetic effects and nonlinear heating in intense x-ray-laser-produced carbon plasmas. *Physical Review E*, **2014**, 90, 051102	2.4	13
36	Multispectral imaging of continuum emission for determination of temperature and density profiles inside implosion plasmas. *Journal of Quantitative Spectroscopy and Radiative Transfer*, **2004**, 88, 433-445	2.1	13
35	Reconstruction of quasimonochromatic images for multispectral x-ray imaging with a pinhole array and a flat Bragg mirror. *Review of Scientific Instruments*, **2006**, 77, 083504	1.7	12
34	Observation and modeling of interspecies ion separation in inertial confinement fusion implosions via imaging x-ray spectroscopy. *Physics of Plasmas*, **2017**, 24, 056305	2.1	10
33	Study of laser produced plasma in a longitudinal magnetic field. *Physics of Plasmas*, **2019**, 26, 062707	2.1	9
32	Compressed shell conditions extracted from spectroscopic analysis of Ti K-shell absorption spectra with evaluation of line self-emission. *Physics of Plasmas*, **2014**, 21, 082711	2.1	9
31	Magnetic field impact on the laser heating in MagLIF. *Physics of Plasmas*, **2020**, 27, 052704	2.1	7
30	Time-resolved characterization and energy balance analysis of implosion core in shock-ignition experiments at OMEGA. *Physics of Plasmas*, **2014**, 21, 102709	2.1	7
29	Spectroscopic modeling of an argon-doped shock-ignition implosion. *Review of Scientific Instruments*, **2010**, 81, 10E307	1.7	7
28	Multiobjective method for fitting pinhole image intensity profiles of implosion cores driven by a Pareto genetic algorithm. *Review of Scientific Instruments*, **2006**, 77, 10F525	1.7	7
27	X-ray heating and electron temperature of laboratory photoionized plasmas. *Physical Review E*, **2020**, 101, 051201	2.4	7
26	Shell stability and conditions analyzed using a new method of extracting shell areal density maps from spectrally resolved images of direct-drive inertial confinement fusion implosions. *Physics of Plasmas*, **2016**, 23, 012709	2.1	7
25	Modelling, design and diagnostics for a photoionised plasma experiment. *Astrophysics and Space Science*, **2009**, 322, 117-121	1.6	6
24	Understanding reliability and some limitations of the images and spectra reconstructed from a multi-monochromatic x-ray imager. *Review of Scientific Instruments*, **2015**, 86, 113505	1.7	5
23	Multiple-view spectrally resolved x-ray imaging observations of polar-direct-drive implosions on OMEGA. *Physics of Plasmas*, **2014**, 21, 122704	2.1	5

22	Spatial structure analysis of direct-drive implosion cores at OMEGA using x-ray narrow-band core images. *Review of Scientific Instruments*, **2006**, 77, 10E320	1.7	5
21	Progress on observations of interspecies ion separation in inertial-confinement-fusion implosions via imaging x-ray spectroscopy. *Physics of Plasmas*, **2019**, 26, 062702	2.1	4
20	Radiation hydrodynamic simulation of a photoionised plasma experiment at the Z facility. *Astrophysics and Space Science*, **2011**, 336, 189-194	1.6	4
19	Narrow-band x-ray imaging for core temperature and density maps retrieval of direct drive implosions **2006**,		4
18	X-Ray Spectroscopy of Dense Plasmas Produced by Isochoric Heating with Ultrashort Laser Pulses. *AIP Conference Proceedings*, **2004**,	0	3
17	Spectroscopy of plasmas at solid density generated by ultra-short laser pulses. *AIP Conference Proceedings*, **2000**,	0	3
16	Data processing of absorption spectra from photoionized plasma experiments at Z. *Review of Scientific Instruments*, **2010**, 81, 10E324	1.7	2
15	Core Temperature and Density Gradients in ICF. *AIP Conference Proceedings*, **2004**,	0	2
14	Solid-Density Ion Temperature from Redshifted and Double-Peaked Stark Line Shapes. *Physical Review Letters*, **2021**, 127, 205001	7.4	2
13	MULTI-OBJECTIVE SPECTROSCOPIC DATA ANALYSIS OF INERTIAL CONFINEMENT FUSION IMPLOSION CORES: PLASMA GRADIENT DETERMINATION. *Advances in Natural Computation*, **2004**, 341-364		2
12	Impact of 3D effects on the characteristics of a multi-monochromatic x-ray imager. *Applied Optics*, **2019**, 58, 4753-4761	1.7	2
11	Temperature distributions and gradients in laser-heated plasmas relevant to magnetized liner inertial fusion. *Physical Review E*, **2020**, 102, 023209	2.4	2
10	Assessment of transient effects on the x-ray spectroscopy of implosion cores at OMEGA. *Journal of Physics B: Atomic, Molecular and Optical Physics*, **2015**, 48, 224006	1.3	1
9	Four-objective analysis including an optically thick line to extract electron temperature and density profiles in ICF implosion cores. *Journal of Physics: Conference Series*, **2008**, 112, 022014	0.3	1
8	Line Broadening Analysis of Argon X-Ray Emission from Z-Driven Implosions Cores. *AIP Conference Proceedings*, **2006**,	0	1
7	Development of a spectroscopic technique for simultaneous magnetic field, electron density, and temperature measurements in ICF-relevant plasmas. *Review of Scientific Instruments*, **2016**, 87, 11E558	1.7	1
6	The design of a photoionization front experiment using the Z-Machine as a driving source and estimated measurements. *Physics of Plasmas*, **2021**, 28, 093304	2.1	1
5	Observation of ionization trends in a laboratory photoionized plasma experiment at Z. *Physical Review E*, **2021**, 104, 035202	2.4	1

4	Stark-Broadening of Ar K-Shell Lines: A Comparison between Molecular Dynamics Simulations and MERL Results. *Atoms*, **2021**, 9, 9	2.1	1
3	Self-radiography of imploded shells on OMEGA based on additive-free multi-monochromatic continuum spectral analysis. *Physics of Plasmas*, **2020**, 27, 122709	2.1	0
2	Investigating radiatively driven, magnetized plasmas with a university scale pulsed-power generator. *Physics of Plasmas*, **2022**, 29, 042107	2.1	0
1	Development and integration of photonic Doppler velocimetry as a diagnostic for radiation driven experiments on the Z-machine.. *Review of Scientific Instruments*, **2022**, 93, 043502	1.7	0