

# JosÃ© M FernÃ¡ndez-Varea

## List of Publications by Year in descending order

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98  
papers

3,653  
citations

218381

26  
h-index

133063

59  
g-index

99  
all docs

99  
docs citations

99  
times ranked

2399  
citing authors

#	ARTICLE	IF	CITATIONS
1	PENELOPE: An algorithm for Monte Carlo simulation of the penetration and energy loss of electrons and positrons in matter. Nuclear Instruments & Methods in Physics Research B, 1995, 100, 31-46.	0.6	721
2	An algorithm for Monte Carlo simulation of coupled electron-photon transport. Nuclear Instruments & Methods in Physics Research B, 1997, 132, 377-390.	0.6	320
3	Experimental benchmarks of the Monte Carlo code penelope. Nuclear Instruments & Methods in Physics Research B, 2003, 207, 107-123.	0.6	274
4	Accurate numerical solution of the radial SchrÃ¶dinger and Dirac wave equations. Computer Physics Communications, 1995, 90, 151-168.	3.0	207
5	Monte Carlo simulation of electron beams from an accelerator head using PENELOPE. Physics in Medicine and Biology, 2001, 46, 1163-1186.	1.6	189
6	Overview of physical interaction models for photon and electron transport used in Monte Carlo codes. Metrologia, 2009, 46, S112-S138.	0.6	160
7	On the theory and simulation of multiple elastic scattering of electrons. Nuclear Instruments & Methods in Physics Research B, 1993, 73, 447-473.	0.6	111
8	Inelastic scattering of electrons in solids from a generalized oscillator strength model using optical and photoelectric data. Journal of Physics Condensed Matter, 1993, 5, 3593-3610.	0.7	91
9	Calculated energy loss of swift He, Li, B, and N ions in SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , and ZrO <sub>2</sub> . Physical Review A, 2005, 72, .	1.0	91
10	Fast sampling algorithm for the simulation of photon Compton scattering. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1996, 379, 167-175.	0.7	82
11	A relativistic optical-data model for inelastic scattering of electrons and positrons in condensed matter. Nuclear Instruments & Methods in Physics Research B, 2005, 229, 187-218.	0.6	81
12	Monte Carlo simulation of 0.1-100 keV electron and positron transport in solids using optical data and partial wave methods. Nuclear Instruments & Methods in Physics Research B, 1996, 108, 35-50.	0.6	80
13	Monte Carlo Evaluation of Auger Electron-Emitting Theranostic Radionuclides. Journal of Nuclear Medicine, 2015, 56, 1441-1446.	2.8	61
14	Monte Carlo simulation of bremsstrahlung emission by electrons. Radiation Physics and Chemistry, 2006, 75, 1201-1219.	1.4	58
15	Limitations (and merits) of PENELOPE as a track-structure code. International Journal of Radiation Biology, 2012, 88, 66-70.	1.0	52
16	Hamaker Constants of Systems Involving Water Obtained from a Dielectric Function That Fulfills the f Sum Rule. Journal of Colloid and Interface Science, 2000, 231, 394-397.	5.0	49
17	Monte Carlo dosimetry for forthcoming clinical trials in x-ray microbeam radiation therapy. Physics in Medicine and Biology, 2010, 55, 4375-4388.	1.6	46
18	Semiempirical cross sections for the simulation of the energy loss of electrons and positrons in matter. Nuclear Instruments & Methods in Physics Research B, 1992, 63, 255-269.	0.6	44

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19	Monte Carlo simulation of X-ray emission using the general-purpose code PENELOPE. <i>Surface and Interface Analysis</i> , 2005, 37, 1054-1058.	0.8	39
20	Absolute K-shell ionization cross sections and $L_{\alpha}$ and $L_{\beta}^1$ x-ray production cross sections of Ga and As by 1.5 keV electrons. <i>Physical Review A</i> , 2006, 73, .	1.0	37
21	radial: A Fortran subroutine package for the solution of the radial Schrödinger and Dirac wave equations. <i>Computer Physics Communications</i> , 2019, 240, 165-177.	3.0	36
22	Dosimetry characterization of a $^{32}\text{P}$ source wire used for intravascular brachytherapy with automated stepping. <i>Medical Physics</i> , 2003, 30, 959-971.	1.6	35
23	Simplified Monte Carlo simulation of elastic electron scattering in limited media. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , 1994, 84, 465-483.	0.6	34
24	Detour factors in water and plastic phantoms and their use for range and depth scaling in electron-beam dosimetry. <i>Physics in Medicine and Biology</i> , 1996, 41, 1119-1139.	1.6	34
25	A Monte Carlo program for the analysis of low-energy electron tracks in liquid water. <i>Physics in Medicine and Biology</i> , 2011, 56, 1985-2003.	1.6	28
26	Monte Carlo simulation of the inelastic scattering of electrons and positrons using optical-data models. <i>Radiation Physics and Chemistry</i> , 1998, 53, 235-245.	1.4	27
27	Monte Carlo Simulation in Electron Probe Microanalysis. Comparison of Different Simulation Algorithms. <i>Mikrochimica Acta</i> , 2006, 155, 67-74.	2.5	27
28	Monte Carlo based water/medium stopping-power ratios for various ICRP and ICRU tissues. <i>Physics in Medicine and Biology</i> , 2007, 52, 6475-6483.	1.6	26
29	Track structure of protons and other light ions in liquid water: Applications of the LlonTrack code at the nanometer scale. <i>Medical Physics</i> , 2013, 40, 064101.	1.6	26
30	Cross sections for electron interactions in condensed matter. <i>Surface and Interface Analysis</i> , 2005, 37, 824-832.	0.8	25
31	Practical aspects of Monte Carlo simulation of charged particle transport: Mixed algorithms and variance reduction techniques. <i>Radiation and Environmental Biophysics</i> , 1999, 38, 15-22.	0.6	24
32	PET imaging of DNA damage using $^{89}\text{Zr}$ -labelled anti- $\gamma\text{H2AX}$ -TAT immunoconjugates. <i>European Journal of Nuclear Medicine and Molecular Imaging</i> , 2015, 42, 1707-1717.	3.3	24
33	Absorbed dose evaluation of Auger electron-emitting radionuclides: impact of input decay spectra on dose point kernels and $\langle S \rangle$ -values. <i>Physics in Medicine and Biology</i> , 2017, 62, 2239-2253.	1.6	24
34	Characterization of a high-dose-rate $^{90}\text{Sr}$ source for intravascular brachytherapy by using the Monte Carlo code PENELOPE. <i>Physics in Medicine and Biology</i> , 2002, 47, 697-711.	1.6	23
35	Mixed simulation of the multiple elastic scattering of electrons and positrons using partial-wave differential cross-sections. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , 2001, 174, 91-110.	0.6	21
36	Comparison of Monte Carlo calculated electron slowing-down spectra generated by $^{60}\text{Co}$ $\gamma$ -rays, electrons, protons and light ions. <i>Physics in Medicine and Biology</i> , 2002, 47, 1303-1319.	1.6	21

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37	Relative Cross Sections for L- and M-Shell Ionization by Electron Impact. <i>Mikrochimica Acta</i> , 2000, 132, 163-171.	2.5	19
38	A comparison of inelastic electron scattering models based on delta -function representations of the Bethe surface. <i>Journal of Physics Condensed Matter</i> , 1992, 4, 2879-2890.	0.7	18
39	Calculations of electron fluence correction factors using the Monte Carlo code PENELOPE. <i>Physics in Medicine and Biology</i> , 2003, 48, 1263-1275.	1.6	18
40	The structure of the Bethe ridge. Relativistic Born and impulse approximations. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2002, 35, 33-53.	0.6	17
41	Ionization cross sections of the L subshells of Au by 50 to 100 keV electron impact. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2015, 48, 175201.	0.6	17
42	Cross sections for elastic scattering of fast electrons and positrons by atoms. <i>Nuclear Instruments &amp; Methods in Physics Research B</i> , 1993, 82, 39-45.	0.6	15
43	Influence of electrodes on the photon energy deposition in CVD-diamond dosimeters studied with the Monte Carlo code PENELOPE. <i>Physics in Medicine and Biology</i> , 2006, 51, 3607-3623.	1.6	15
44	Evaluation and Simulation of a New Ionization Chamber Design for use in Computed Tomography Beams. <i>IEEE Transactions on Nuclear Science</i> , 2013, 60, 768-773.	1.2	15
45	Efficiency calibration of x-ray HPGe detectors for photons with energies above the Ge K binding energy. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2013, 729, 371-380.	0.7	14
46	Analytical formula for the stopping power of low-energy ions in a free-electron gas. <i>Radiation Physics and Chemistry</i> , 2014, 96, 88-91.	1.4	14
47	Determination of LaBr 3 (Ce) internal background using a HPGe detector and Monte Carlo simulations. <i>Applied Radiation and Isotopes</i> , 2016, 109, 512-517.	0.7	14
48	Optimization of a tissue-equivalent CVD-diamond dosimeter for radiotherapy using the Monte Carlo code PENELOPE. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2008, 593, 578-587.	0.7	13
49	Cross sections of K-shell ionization by electron impact, measured from threshold to 100 keV, for Au and Bi. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2014, 47, 155201.	0.6	13
50	$L_{1\pm}, L_{2\pm}$ , and $L_{3\pm}$ x-ray production cross sections of Hf, Ta, W, Re, Os, Au, Pb, and Bi by electron impact: Comparison of distorted-wave calculations with experiment. <i>Physical Review A</i> , 2011, 83, .	1.0	12
51	Radial Energy Distributions in LiF by Alpha Particle Irradiation Using Monte Carlo Simulation. <i>Radiation Protection Dosimetry</i> , 1996, 65, 37-40.	0.4	10
52	Stopping cross sections of TiO2 for H and He ions. <i>European Physical Journal D</i> , 2014, 68, 1.	0.6	10
53	Full-energy peak efficiency of Si-drift and Si(Li) detectors for photons with energies above the Si K binding energy. <i>X-Ray Spectrometry</i> , 2017, 46, 34-43.	0.9	10
54	Electron-atom bremsstrahlung cross sections in the 20-100 keV energy region: absolute measurements for $Z_{\text{target}} \leq 79$ and comparison with theoretical databases. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2018, 51, 225003.	0.6	10

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55	Distorted-wave ionization and x-ray production cross sections of the $W$ $K$ shell of Cu and the $L$ shells of Ag, In, and Sn by positron impact. Physical Review A, 2008, 77, . Monte Carlo simulation of correction factors for IAEA TLD holders. Physics in Medicine and Biology, 2010, 55, N161-N166.	1.0	10
56	A new parallel-plate graphite ionization chamber as a $^{60}\text{Co}$ gamma radiation reference instrument. Radiation Physics and Chemistry, 2014, 95, 106-108.	1.0	9
57	A microfocuss x-ray source based on a nonmetal liquid-jet anode. Applied Physics Letters, 2008, 92, 233509.	1.6	9
58	Application of a Pencil Ionization Chamber (0.34 cm <sup>3</sup> Volume) for $^{60}\text{Co}$ Beams: Experimental and Monte Carlo Results. IEEE Transactions on Nuclear Science, 2013, 60, 746-750.	1.4	9
59	Dynamic screening of an ion in a degenerate electron gas within the second-order Born approximation. Nuclear Instruments & Methods in Physics Research B, 2015, 354, 167-171.	1.5	8
60	Ag K-shell ionization by electron impact: New cross-section measurements between 50 and 100keV and review of previous experimental data. Radiation Physics and Chemistry, 2016, 119, 14-23.	1.2	8
61	Calculation of the energy loss of swift H and He ions in Ag using the dielectric formalism: The role of inner-shell ionization. Nuclear Instruments & Methods in Physics Research B, 2007, 256, 172-176.	0.6	8
62	Ionization cross sections of the Au L subshells by electron impact from the $L_{3}$ threshold to 100 keV. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 025201.	1.4	8
63	On the relativistic impulse approximation for the calculation of Compton scattering cross sections and photon interaction coefficients used in kV dosimetry. Physics in Medicine and Biology, 2020, 65, 125010.	0.6	7
64	A comprehensive Monte Carlo study of CT dose metrics proposed by the AAPM Reports 111 and 200. Medical Physics, 2022, 49, 201-218.	1.0	7
65	Monte Carlo simulation and analysis of proton energy-deposition patterns in the Bragg peak. Physics in Medicine and Biology, 2008, 53, 2857-2875.	1.6	7
66	Monte Carlo Simulation of Pileup Effects in the Electron-Positron Annihilation Peak. , 2011, , .	1.6	7
67	First Experiments with the IFUSP Microtron Injector. AIP Conference Proceedings, 2011, , .	0.3	5
68	L-shell X-ray production cross-sections for Mo by proton impact. Journal of Analytical Atomic Spectrometry, 2019, 34, 214-221.	1.6	6
69	Monte Carlo Simulation of Electron Transport and X-Ray Generation. I. Electron Elastic and Inelastic Scattering. Mikrochimica Acta, 2004, 145, 193-202.	1.6	6
70	Monte Carlo Simulation of Electron Transport and X-Ray Generation. I. Electron Elastic and Inelastic Scattering. Mikrochimica Acta, 2004, 145, 193-202.	2.5	4
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73	Analytical response function for planar Ge detectors. Radiation Physics and Chemistry, 2016, 121, 23-34.	1.4	4
74	Triple- and quadruple-escape peaks in HPGe detectors: Experimental observation and Monte Carlo simulation. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2010, 615, 285-294.	0.7	3
75	Second-order Born approximation for the scattering phase shifts: Application to the Friedel sum rule. Nuclear Instruments & Methods in Physics Research B, 2013, 311, 121-130.	0.6	3
76	Electronic stopping power of diamond for electrons and positrons. Physics in Medicine and Biology, 2021, 66, 165003.	1.6	3
77	Experimental and theoretical $L$ -subshell ionization cross sections for $Bi$ by electron impact from the $83$ $Bi$ $\beta$ decay. Journal of Physics D: Applied Physics, 2018, 51, 145201.	1.0	3
78	A simplified method for the detailed Monte Carlo simulation of electron transport. Journal Physics D: Applied Physics, 1991, 24, 814-826.	1.3	2
79	Radial dose function of a $^{90}Sr$ - $^{90}Y$ seed in water and A150: Comment on "Calibration and characterization of beta-particle sources for intravascular brachytherapy" [Med. Phys.25, 339-346 (1998)]. Medical Physics, 2002, 29, 2737-2738.	1.6	2
80	Monte Carlo Simulation of Electron Transport and X-Ray Generation. II. Radiative Processes and Examples in Electron Probe Microanalysis. Mikrochimica Acta, 2004, 145, 111-120.	2.5	2
81	RBED cross sections for the ionization of atomic inner shells by electron-impact. Journal of Physics B: Atomic, Molecular and Optical Physics, 2018, 51, 145201.	0.6	2
82	Impact of the $I$ -value of diamond on the energy deposition in different beam qualities. Physics in Medicine and Biology, 2021, 66, .	1.6	2
83	Impact of photoelectric cross section data on systematic uncertainties for Monte Carlo breast dosimetry in mammography. Physics in Medicine and Biology, 2021, 66, 115015.	1.6	2
84	Measurement of doubly differential electron bremsstrahlung cross sections at the end point (tip) for C, Al, Te, Ta and Au. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 155003.	0.6	2
85	Observation of double electron-positron pair production by $\gamma$ rays reexamined. Physical Review C, 2009, 79, .	1.1	1
86	Intrinsic efficiency of semiconductor spectrometers for divergent photon beams. Nuclear Instruments & Methods in Physics Research B, 2020, 477, 39-42.	0.6	1
87	Simulation of X-ray Spectra Generated by Kilovolt-Electron Bombardment. , 2001, , 105-110.		1
88	Evaluation of beta-particle emitter spectra in liquid scintillation counting systems. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1992, 312, 136-140.	0.7	0
89	333 Monte Carlo based $sw_{med}$ values for different ICRU tissues. Radiotherapy and Oncology, 2005, 76, S151-S152.	0.3	0
90	472 Monte Carlo study of the fluence perturbation in CVD diamond detectors due to electric contacts. Radiotherapy and Oncology, 2005, 76, S204.	0.3	0

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91	$\langle L^{\pm}, L^2 \rangle$ , and $\langle L \rangle^3$ x-ray production cross sections for heavy elements by electron impact. Journal of Physics: Conference Series, 2009, 194, 042001.	0.3	0
92	Dosimetric application of a special pencil ionization chamber in radiotherapy X-ray beams. Radiation Physics and Chemistry, 2014, 95, 98-100.	1.4	0
93	Preliminary measurements of the Bremsstrahlung doubly differential cross section for electrons between 20 and 100 keV in Au. Journal of Physics: Conference Series, 2015, 635, 052084.	0.3	0
94	Abstract ID: 165 Assessment of RBED electron-impact ionization cross sections for Monte Carlo electron transport. Physica Medica, 2017, 42, 35.	0.4	0
95	Calculation of secondary electron bremsstrahlung in the binary encounter approximation using Dirac-Hartree-Fock-Slater velocity distributions. Nuclear Instruments & Methods in Physics Research B, 2020, 478, 70-79.	0.6	0
96	Status of PENELOPE. , 2001, , 147-152.		0
97	Modelling the Generalized Oscillator Strength for Low-Energy Electron or Positron Inelastic Scattering. , 2001, , 33-38.		0
98	Analog Electron Physics. Interaction Cross-Sections. , 2001, , 27-32.		0