Jan Schuemann

List of Publications by Year
in descending order

126 papers	3,945 citations	136740 32 h-index	123241 61 g-index
129 all docs	129 docs citations	129 times ranked	3284 citing authors

#	Article	IF	Citations
1	TOPAS: An innovative proton Monte Carlo platform for research and clinical applications. Medical Physics, 2012, 39, 6818-6837.	1.6	694
2	A phenomenological relative biological effectiveness (RBE) model for proton therapy based on all published<i>in vitro</i>cell survival data. Physics in Medicine and Biology, 2015, 60, 8399-8416.	1.6	246
3	Range uncertainty in proton therapy due to variable biological effectiveness. Physics in Medicine and Biology, 2012, 57, 1159-1172.	1.6	197
4	Roadmap to Clinical Use of Gold Nanoparticles for Radiation Sensitization. International Journal of Radiation Oncology Biology Physics, 2016, 94, 189-205.	0.4	182
5	Comparing gold nano-particle enhanced radiotherapy with protons, megavoltage photons and kilovoltage photons: a Monte Carlo simulation. Physics in Medicine and Biology, 2014, 59, 7675-7689.	1.6	139
6	The TOPAS tool for particle simulation, a Monte Carlo simulation tool for physics, biology and clinical research. Physica Medica, 2020, 72, 114-121.	0.4	126
7	TOPAS-nBio: An Extension to the TOPAS Simulation Toolkit for Cellular and Sub-cellular Radiobiology. Radiation Research, 2018, 191, 125.	0.7	124
8	Biological modeling of gold nanoparticle enhanced radiotherapy for proton therapy. Physics in Medicine and Biology, 2015, 60, 4149-4168.	1.6	110
9	Measurement of Branching Fractions and Polarization inBâ†'Ï†K(*)Decays. Physical Review Letters, 2003, 91, 201801.	2.9	109
10	Site-specific range uncertainties caused by dose calculation algorithms for proton therapy. Physics in Medicine and Biology, 2014, 59, 4007-4031.	1.6	103
11	Roadmap for metal nanoparticles in radiation therapy: current status, translational challenges, and future directions. Physics in Medicine and Biology, 2020, 65, 21RM02.	1.6	101
12	Difference in direct charge-parity violation between charged and neutral B meson decays. Nature, 2008, 452, 332-335.	13.7	99
13	Experimental validation of the TOPAS Monte Carlo system for passive scattering proton therapy. Medical Physics, 2013, 40, 121719.	1.6	97
14	Evidence for the Appearance of Atmospheric Tau Neutrinos in Super-Kamiokande. Physical Review Letters, 2013, 110, 181802.	2.9	78
15	Assessing the Clinical Impact of Approximations in Analytical Dose Calculations for Proton Therapy. International Journal of Radiation Oncology Biology Physics, 2015, 92, 1157-1164.	0.4	75
16	Mechanistic Modelling of DNA Repair and Cellular Survival Following Radiation-Induced DNA Damage. Scientific Reports, 2016, 6, 33290.	1.6	72
17	Validation of the radiobiology toolkit TOPAS-nBio in simple DNA geometries. Physica Medica, 2017, 33, 207-215.	0.4	70
18	Dependence of gold nanoparticle radiosensitization on cell geometry. Nanoscale, 2017, 9, 5843-5853.	2.8	61

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19	Dosimetric feasibility of realâ€time MRIâ€guided proton therapy. Medical Physics, 2014, 41, 111713.	1.6	60
20	Monte Carlo simulation of chemistry following radiolysis with TOPAS-nBio. Physics in Medicine and Biology, 2018, 63, 105014.	1.6	58
21	Extension of TOPAS for the simulation of proton radiation effects considering molecular and cellular endpoints. Physics in Medicine and Biology, 2015, 60, 5053-5070.	1.6	56
22	A general mechanistic model enables predictions of the biological effectiveness of different qualities of radiation. Scientific Reports, 2017, 7, 10790.	1.6	50
23	Dose enhancement effects to the nucleus and mitochondria from gold nanoparticles in the cytosol. Physics in Medicine and Biology, 2016, 61, 5993-6010.	1.6	49
24	A New Standard DNA Damage (SDD) Data Format. Radiation Research, 2018, 191, 76.	0.7	49
25	Search for Nucleon Decay via<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>n</mml:mi><mml:mo stretchy="false">â†'</mml:mo><mml:mover accent="true"><mml:mi>Î½</mml:mi><mml:mo stretchy="false">Â¯</mml:mo></mml:mover><mml:msup><mml:mi>Ï€</mml:mi><mml:mn>0</mml:mn></mml:msup></mml:math>and xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>p</mml:mi><mml:mo stretchy="false">â†'</mml:mo><mml:mover accent="true"><mml:mi>Î½</mml:mi><mml:mo stretchy="false">	2.9	48
26	Gold nanoparticle induced vasculature damage in radiotherapy: Comparing protons, megavoltage photons, and kilovoltage photons. Medical Physics, 2015, 42, 5890-5902.	1.6	43
27	Brain Necrosis in Adult Patients After Proton Therapy: Is There Evidence for Dependency on Linear Energy Transfer?. International Journal of Radiation Oncology Biology Physics, 2021, 109, 109-119.	0.4	43
28	Validation of a GPU-based Monte Carlo code (gPMC) for proton radiation therapy: clinical cases study. Physics in Medicine and Biology, 2015, 60, 2257-2269.	1.6	42
29	Intercomparison of dose enhancement ratio and secondary electron spectra for gold nanoparticles irradiated by X-rays calculated using multiple Monte Carlo simulation codes. Physica Medica, 2020, 69, 147-163.	0.4	42
30	LET-Dependent Intertrack Yields in Proton Irradiation at Ultra-High Dose Rates Relevant for FLASH Therapy. Radiation Research, 2020, 194, 351-362.	0.7	39
31	Geometrical structures for radiation biology research as implemented in the TOPAS-nBio toolkit. Physics in Medicine and Biology, 2018, 63, 175018.	1.6	36
32	Radio-enhancement by gold nanoparticles and their impact on water radiolysis for x-ray, proton and carbon-ion beams. Physics in Medicine and Biology, 2019, 64, 175005.	1.6	36
33	Assessing the radiation-induced second cancer risk in proton therapy for pediatric brain tumors: the impact of employing a patient-specific aperture in pencil beam scanning. Physics in Medicine and Biology, 2016, 61, 12-22.	1.6	34
34	Determining the Radiation Enhancement Effects of Gold Nanoparticles in Cells in a Combined Treatment with Cisplatin and Radiation at Therapeutic Megavoltage Energies. Cancers, 2018, 10, 150.	1.7	33
35	Recent developments and comprehensive evaluations of a GPU-based Monte Carlo package for proton therapy. Physics in Medicine and Biology, 2016, 61, 7347-7362.	1.6	32
36	A parameter sensitivity study for simulating DNA damage after proton irradiation using TOPAS-nBio. Physics in Medicine and Biology, 2020, 65, 085015.	1.6	31

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37	Cellular Response to Proton Irradiation: A Simulation Study with TOPAS-nBio. Radiation Research, 2020, 194, 9.	0.7	30
38	The microdosimetric extension in TOPAS: development and comparison with published data. Physics in Medicine and Biology, 2019, 64, 145004.	1.6	26
39	Search for GUT monopoles at Superâ€“Kamiokande. Astroparticle Physics, 2012, 36, 131-136.	1.9	25
40	An algorithm to assess the need for clinical Monte Carlo dose calculation for small proton therapy fields based on quantification of tissue heterogeneity. Medical Physics, 2013, 40, 081704.	1.6	24
41	Modulation of nanoparticle uptake, intracellular distribution, and retention with docetaxel to enhance radiotherapy. British Journal of Radiology, 2020, 93, 20190742.	1.0	24
42	Automated Monte Carlo Simulation of Proton Therapy Treatment Plans. Technology in Cancer Research and Treatment, 2016, 15, NP35-NP46.	0.8	23
43	Use of a lipid nanoparticle system as a Trojan horse in delivery of gold nanoparticles to human breast cancer cells for improved outcomes in radiation therapy. Cancer Nanotechnology, 2019, 10, .	1.9	21
44	Intercomparison of Monte Carlo calculated dose enhancement ratios for gold nanoparticles irradiated by X-rays: Assessing the uncertainty and correct methodology for extended beams. Physica Medica, 2021, 84, 241-253.	0.4	20
45	Biological and dosimetric characterisation of spatially fractionated proton minibeams. Physics in Medicine and Biology, 2017, 62, 9260-9281.	1.6	18
46	Improving proton dose calculation accuracy by using deep learning. Machine Learning: Science and Technology, 2021, 2, 015017.	2.4	16
47	TOPAS-nBio validation for simulating water radiolysis and DNA damage under low-LET irradiation. Physics in Medicine and Biology, 2021, 66, 175026.	1.6	16
48	Relative biological effectiveness (RBE) and out-of-field cell survival responses to passive scattering and pencil beam scanning proton beam deliveries. Physics in Medicine and Biology, 2012, 57, 6671-6680.	1.6	15
49	Computational Modeling and Clonogenic Assay for Radioenhancement of Gold Nanoparticles Using 3D Live Cell Images. Radiation Research, 2018, 190, 558.	0.7	15
50	Energy optimization in gold nanoparticle enhanced radiation therapy. Physics in Medicine and Biology, 2018, 63, 135001.	1.6	14
51	Modulation of gold nanoparticle mediated radiation dose enhancement through synchronization of breast tumor cell population. British Journal of Radiology, 2019, 92, 20190283.	1.0	13
52	The relation between microdosimetry and induction of direct damage to DNA by alpha particles. Physics in Medicine and Biology, 2021, 66, 155016.	1.6	11
53	Mitochondria as a target for radiosensitisation by gold nanoparticles. Journal of Physics: Conference Series, 2017, 777, 012008.	0.3	10
54	Comparing stochastic proton interactions simulated using TOPAS-nBio to experimental data from fluorescent nuclear track detectors. Physics in Medicine and Biology, 2017, 62, 3237-3249.	1.6	10

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55	Targeting the DNA replication stress phenotype of KRAS mutant cancer cells. Scientific Reports, 2021, 11, 3656.	1.6	10
56	Flagged uniform particle splitting for variance reduction in proton and carbon ion track-structure simulations. Physics in Medicine and Biology, 2017, 62, 5908-5925.	1.6	9
57	Monte Carlo methods for device simulations in radiation therapy. Physics in Medicine and Biology, 2021, 66, 18TR01.	1.6	9
58	Multi-scale Monte Carlo simulations of gold nanoparticle-induced DNA damages for kilovoltage X-ray irradiation in a xenograft mouse model using TOPAS-nBio. Cancer Nanotechnology, 2021, 12, .	1.9	9
59	Application of High-Z Gold Nanoparticles in Targeted Cancer Radiotherapyâ€"Pharmacokinetic Modeling, Monte Carlo Simulation and Radiobiological Effect Modeling. Cancers, 2021, 13, 5370.	1.7	9
60	Consistency checks of results from a Monte Carlo code intercomparison for emitted electron spectra and energy deposition around a single gold nanoparticle irradiated by X-rays. Radiation Measurements, 2021, 147, 106637.	0.7	7
61	Limitations of analytical dose calculations for small field proton radiosurgery. Physics in Medicine and Biology, 2017, 62, 246-257.	1.6	6
62	Monte Carlo Processing on a Chip (MCoaC)-preliminary experiments toward the realization of optimal-hardware for TOPAS/Geant4 to drive discovery. Physica Medica, 2019, 64, 166-173.	0.4	6
63	Computational models and tools. Medical Physics, 2018, 45, e1073-e1085.	1.6	5
64	Impact of uncertainties in range and RBE on small field proton therapy. Physics in Medicine and Biology, 2019, 64, 205005.	1.6	5
65	DNA damage modeled with Geant4-DNA: effects of plasmid DNA conformation and experimental conditions. Physics in Medicine and Biology, 2021, 66, 245017.	1.6	5
66	TOPAS-nBio simulation of temperature-dependent indirect DNA strand break yields. Physics in Medicine and Biology, 0, , .	1.6	5
67	Challenges in the quantification approach to a radiation relevant adverse outcome pathway for lung cancer. International Journal of Radiation Biology, 2021, 97, 85-101.	1.0	4
68	Pre- and post-treatment image-based dosimetry in ⁹⁰Y-microsphere radioembolization using the TOPAS Monte Carlo toolkit. Physics in Medicine and Biology, 2021, 66, 244002.	1.6	4
69	A computational approach to quantifying miscounting of radiation-induced double-strand break immunofluorescent foci. Communications Biology, 2022, 5, .	2.0	4
70	Timeâ€resolved diode dosimetry calibration through Monte Carlo modeling for <i>inÂvivo</i> passive scattered proton therapy range verification. Journal of Applied Clinical Medical Physics, 2017, 18, 200-205.	0.8	3
71	SU-E-T-475: Nano-Dosimetric Track Structure Scoring including Biological Modeling with TOPAS-NBio. Medical Physics, 2012, 39, 3814-3814.	1.6	3
72	SU-E-T-180: Fano Cavity Test of Proton Transport in Monte Carlo Codes Running On GPU and Xeon Phi. Medical Physics, 2014, 41, 264-264.	1.6	3

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73	WE-H-BRA-01: BEST IN PHYSICS (THERAPY): Nano-Dosimetric Kinetic Model for Variable Relative Biological Effectiveness of Proton and Ion Beams. Medical Physics, 2016, 43, 3842-3842.	1.6	3
74	SUâ€•Eâ€•Tâ€•500: Pencilâ€•Beam versus Monte Carlo Based Dose Calculation for Proton Therapy Patients with Complex Geometries. Clinical Use of the TOPAS Monte Carlo System. Medical Physics, 2012, 39, 3820-3820.	1.6	3
75	SUâ€•Fâ€•BRDâ€•13: A Phenomenological Relative Biological Effectiveness (RBE) Model for Proton Therapy Based On All Published in Vitro Cell Survival Data. Medical Physics, 2015, 42, 3528-3528.	1.6	3
76	Dosimetric Uncertainties and Their Impact on Treatment Planning in Stereotactic Proton Radiosurgery. International Journal of Radiation Oncology Biology Physics, 2016, 96, E618.	0.4	2
77	WE-F-105-03: Development of GPMC V2.0, a GPU-Based Monte Carlo Dose Calculation Package for Proton Radiotherapy. Medical Physics, 2013, 40, 498-498.	1.6	2
78	SUâ€•Eâ€•Tâ€•518: Investigation of Gold Nanoparticle Radiosensitization for Carbon Ion Therapy. Medical Physics, 2015, 42, 3454-3454.	1.6	2
79	TU-F-CAMPUS-T-04: Using Gold Nanoparticles to Target Mitochondria in Radiation Therapy. Medical Physics, 2015, 42, 3644-3644.	1.6	2
80	SU-F-T-139: Meeting the Challenges of Quality Control in the TOPAS Monte Carlo Simulation Toolkit for Proton Therapy. Medical Physics, 2016, 43, 3493-3494.	1.6	2
81	Comparing 2 Monte Carlo Systems in Use for Proton Therapy Research. International Journal of Particle Therapy, 2019, 6, 18-27.	0.9	2
82	Advanced Dose Calculation to Reduce Uncertainties in Treatment Planning and Delivery for Proton Therapy Patients. International Journal of Radiation Oncology Biology Physics, 2012, 84, S55-S56.	0.4	1
83	Site-Specific Range Uncertainties Due to by Dose Calculation Algorithms for Proton Therapy. International Journal of Radiation Oncology Biology Physics, 2014, 90, S26.	0.4	1
84	Effects of Gold Nanoparticles for Radiation Therapy Enhancement. International Journal of Radiation Oncology Biology Physics, 2015, 93, S43.	0.4	1
85	EP-1551: Benchmarking Monte Carlo for proton radiosurgery. Radiotherapy and Oncology, 2016, 119, S718-S719.	0.3	1
86	Investigating beam range uncertainty in proton prostate treatment using pelvic-like biological phantoms. Physics in Medicine and Biology, 2021, 66, 185005.	1.6	1
87	SU-E-T-464: On the Equivalence of the Quality Correction Factor for Pencil Beam Scanning Proton Therapy. Medical Physics, 2014, 41, 333-333.	1.6	1
88	SU-E-T-473: Performance Assessment of the TOPAS Tool for Particle Simulation for Proton Therapy Applications. Medical Physics, 2012, 39, 3814-3814.	1.6	1
89	Implementation of apertures in a proton pencil-beam dose algorithm. Biomedical Physics and Engineering Express, 2022, 8, 025024.	0.6	1
90	NK and NKT cells in pseudomonas aeruginosa exotoxin A -induced hepatotoxicity in mice. Journal of Hepatology, 2003, 38, 208.	1.8	0

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91	Fast Monte Carlo Dose Calculation on GPU for Proton Therapy. International Journal of Radiation Oncology Biology Physics, 2012, 84, S841.	0.4	0
92	OC-0079: Biological modeling of gold nanoparticle radiosensitization for proton therapy. Radiotherapy and Oncology, 2014, 111, S30-S31.	0.3	0
93	PD-0096: Quantification of gold nanoparticle induced microscopic dose enhancement using protons. Radiotherapy and Oncology, 2014, 111, S40.	0.3	0
94	SP-0111: Dose calculation accuracy in proton therapy. Radiotherapy and Oncology, 2015, 115, S53-S54.	0.3	0
95	SU-E-T-470: Comparison of Proton Treatment Planning and Monte Carlo Calculation Using TOPAS for Liver Cancer. Medical Physics, 2012, 39, 3813-3813.	1.6	0
96	WE-C-BRB-09: Development of a GPU-Based Monte Carlo Dose Calculation Package for Proton Radiotherapy. Medical Physics, 2012, 39, 3945-3945.	1.6	0
97	WE-C-BRB-07: Benchmarking of the TOPAS Monte Carlo System against Phantom Dose Measurements in Proton Therapy. Medical Physics, 2012, 39, 3945-3945.	1.6	0
98	MO-F-BRB-03: A Method to Assess the Need for Clinical Monte Carlo Dose Calculations for Small Proton Therapy Fields. Medical Physics, 2012, 39, 3874-3874.	1.6	0
99	TH-E-BRA-06: Feasibility of Real Time MRI-Guidance in Proton Therapy. Medical Physics, 2012, 39, 4012-4013.	1.6	0
100	SU-E-T-404: Quantification of Proton Dose Enhancement Resulting From Gold Nanoparticles. Medical Physics, 2013, 40, 297-297.	1.6	0
101	SU-E-T-451: Patient and Site-Specific Assessment of the Value of Routine Monte Carlo Dose Calculation in Proton Therapy. Medical Physics, 2013, 40, 309-309.	1.6	0
102	TU-A-108-01: Four-Dimensional Monte Carlo Using the TOPAS TOol for PArticle Simulation. Medical Physics, 2013, 40, 419-419.	1.6	0
103	WE-C-108-07: Optimal Parameters for Variance Reduction in Monte Carlo Simulations for Proton Therapy. Medical Physics, 2013, 40, 475-475.	1.6	0
104	WE-G-500-04: A Novel Technique for In-Vivo and Real-Time Range Verification Based On the Characteristic Prompt Gamma Time-Structure of Passively Modulated Proton Beams. Medical Physics, 2013, 40, 503-503.	1.6	0
105	TH-A-19A-02: Expanding TOPAS Towards Biological Modeling. Medical Physics, 2014, 41, 533-533.	1.6	0
106	TH-A-19A-11: Validation of GPU-Based Monte Carlo Code (gPMC) Versus Fully Implemented Monte Carlo Code (TOPAS) for Proton Radiation Therapy: Clinical Cases Study. Medical Physics, 2014, 41, 535-535.	1.6	0
107	TH-A-19A-06: Site-Specific Comparison of Analytical and Monte Carlo Based Dose Calculations. Medical Physics, 2014, 41, 534-534.	1.6	0
108	WE-D-BRF-01: FEATURED PRESENTATION - Investigating Particle Track Structures Using Fluorescent Nuclear Track Detectors and Monte Carlo Simulations. Medical Physics, 2014, 41, 495-495.	1.6	0

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109	WE-G-BRE-02: Biological Modeling of Gold Nanoparticle Radiosensitization for Proton Therapy. Medical Physics, 2014, 41, 517-517.	1.6	0
110	WE-G-BRE-04: Gold Nanoparticle Induced Vasculature Damage for Proton Therapy: Monte Carlo Simulation. Medical Physics, 2014, 41, 517-517.	1.6	0
111	SUâ€Eâ€Tâ€524: Inâ€Vivo Diode Dosimetry Proton Therapy Range Verification Validation Study for Pediatric CSI. Medical Physics, 2015, 42, 3455-3456.	1.6	0
112	SUâ€Eâ€Tâ€567: Neutron Dose Equivalent Evaluation for Pencil Beam Scanning Proton Therapy with Apertures. Medical Physics, 2015, 42, 3466-3466.	1.6	0
113	SUâ€Eâ€Tâ€769: Tâ€Test Based Prior Error Estimate and Stopping Criterion for Monte Carlo Dose Calculation in Proton Therapy. Medical Physics, 2015, 42, 3514-3514.	1.6	0
114	SUâ€Eâ€Tâ€135: Assessing the Clinical Impact of Approximations in Analytical Dose Calculations for Proton Therapy. Medical Physics, 2015, 42, 3362-3362.	1.6	0
115	SUâ€Eâ€Tâ€466: Implementation of An Extension Module for Dose Response Models in the TOPAS Monte Carlo Toolkit. Medical Physics, 2015, 42, 3441-3442.	1.6	0
116	SUâ€Eâ€Tâ€673: Recent Developments and Comprehensive Validations of a GPUâ€Based Proton Monte Carlo Simulation Package, GPMC. Medical Physics, 2015, 42, 3491-3491.	1.6	0
117	WE-H-BRA-07: Mechanistic Modelling of the Relative Biological Effectiveness of Heavy Charged Particles. Medical Physics, 2016, 43, 3844-3844.	1.6	0
118	SU-F-T-682: In-Vivo Simulation of the Relative Biological Effectiveness in Proton Therapy Using a Monte Carlo Method. Medical Physics, 2016, 43, 3621-3621.	1.6	0
119	WE-H-BRA-04: Biological Geometries for the Monte Carlo Simulation Toolkit TOPASNBio. Medical Physics, 2016, 43, 3843-3843.	1.6	0
120	TH-CD-201-07: Experimentally Investigating Proton Energy Deposition On the Microscopic Scale Using Fluorescence Nuclear Track Detectors. Medical Physics, 2016, 43, 3870-3871.	1.6	0
121	SU-F-T-157: Physics Considerations Regarding Dosimetric Accuracy of Analytical Dose Calculations for Small Field Proton Therapy: A Monte Carlo Study. Medical Physics, 2016, 43, 3498-3498.	1.6	0
122	WE-DE-202-00: Connecting Radiation Physics with Computational Biology. Medical Physics, 2016, 43, 3815-3815.	1.6	0
123	WE-AB-207B-06: Dose and Biological Uncertainties in Sarcoma. Medical Physics, 2016, 43, 3805-3805.	1.6	0
124	WE-DE-202-01: Connecting Nanoscale Physics to Initial DNA Damage Through Track Structure Simulations. Medical Physics, 2016, 43, 3815-3815.	1.6	0
125	MO-FG-CAMPUS-TeP3-02: Benchmarks of a Proton Relative Biological Effectiveness (RBE) Model for DNA Double Strand Break (DSB) Induction in the FLUKA, MCNP, TOPAS, and RayStationâ„¢ Treatment Planning System. Medical Physics, 2016, 43, 3727-3728.	1.6	0
126	Poster - 16: Time-resolved diode dosimetry for in vivo proton therapy range verification: calibration through numerical modeling. Medical Physics, 2016, 43, 4939-4939.	1.6	0