Jan Schuemann

List of Publications by Year in Descending Order

101 papers	2,535 citations	26 h-index	49 g-index
129 ext. papers	3,337 ext. citations	4 avg, IF	5.17 L-index

#	Paper	IF	Citations
101	Application of High-Z Gold Nanoparticles in Targeted Cancer Radiotherapy-Pharmacokinetic Modeling, Monte Carlo Simulation and Radiobiological Effect Modeling. *Cancers*, **2021**, 13,	6.6	1
100	Improving proton dose calculation accuracy by using deep learning. *Machine Learning: Science and Technology*, **2021**, 2, 015017	5.1	2
99	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	2.7	4
98	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	4	8
97	Challenges in the quantification approach to a radiation relevant adverse outcome pathway for lung cancer. *International Journal of Radiation Biology*, **2021**, 97, 85-101	2.9	3
96	Targeting the DNA replication stress phenotype of KRAS mutant cancer cells. *Scientific Reports*, **2021**, 11, 3656	4.9	5
95	TOPAS-nBio validation for simulating water radiolysis and DNA damage under low-LET irradiation. *Physics in Medicine and Biology*, **2021**, 66,	3.8	1
94	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	1.5	0
93	Monte Carlo methods for device simulations in radiation therapy. *Physics in Medicine and Biology*, **2021**, 66,	3.8	2
92	Roadmap for metal nanoparticles in radiation therapy: current status, translational challenges, and future directions. *Physics in Medicine and Biology*, **2020**, 65, 21RM02	3.8	45
91	Cellular Response to Proton Irradiation: A Simulation Study with TOPAS-nBio. *Radiation Research*, **2020**, 194, 9-21	3.1	9
90	A parameter sensitivity study for simulating DNA damage after proton irradiation using TOPAS-nBio. *Physics in Medicine and Biology*, **2020**, 65, 085015	3.8	11
89	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	2.7	17
88	The TOPAS tool for particle simulation, a Monte Carlo simulation tool for physics, biology and clinical research. *Physica Medica*, **2020**, 72, 114-121	2.7	26
87	LET-Dependent Intertrack Yields in Proton Irradiation at Ultra-High Dose Rates Relevant for FLASH Therapy. *Radiation Research*, **2020**, 194, 351-362	3.1	12
86	Modulation of nanoparticle uptake, intracellular distribution, and retention with docetaxel to enhance radiotherapy. *British Journal of Radiology*, **2020**, 93, 20190742	3.4	11
85	Impact of uncertainties in range and RBE on small field proton therapy. *Physics in Medicine and Biology*, **2019**, 64, 205005	3.8	4

84	Modulation of gold nanoparticle mediated radiation dose enhancement through synchronization of breast tumor cell population. *British Journal of Radiology*, **2019**, 92, 20190283	3.4	6
83	The microdosimetric extension in TOPAS: development and comparison with published data. *Physics in Medicine and Biology*, **2019**, 64, 145004	3.8	10
82	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,	7.9	11
81	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	2.7	2
80	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	3.8	15
79	Comparing 2 Monte Carlo Systems in Use for Proton Therapy Research. *International Journal of Particle Therapy*, **2019**, 6, 18-27	1.5	1
78	A New Standard DNA Damage (SDD) Data Format. *Radiation Research*, **2019**, 191, 76-92	3.1	32
77	TOPAS-nBio: An Extension to the TOPAS Simulation Toolkit for Cellular and Sub-cellular Radiobiology. *Radiation Research*, **2019**, 191, 125-138	3.1	48
76	Monte Carlo simulation of chemistry following radiolysis with TOPAS-nBio. *Physics in Medicine and Biology*, **2018**, 63, 105014	3.8	25
75	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,	6.6	19
74	Geometrical structures for radiation biology research as implemented in the TOPAS-nBio toolkit. *Physics in Medicine and Biology*, **2018**, 63, 175018	3.8	14
73	Energy optimization in gold nanoparticle enhanced radiation therapy. *Physics in Medicine and Biology*, **2018**, 63, 135001	3.8	9
72	Computational models and tools. *Medical Physics*, **2018**, 45, e1073-e1085	4.4	2
71	Computational Modeling and Clonogenic Assay for Radioenhancement of Gold Nanoparticles Using 3D Live Cell Images. *Radiation Research*, **2018**, 190, 558-564	3.1	10
70	Mitochondria as a target for radiosensitisation by gold nanoparticles. *Journal of Physics: Conference Series*, **2017**, 777, 012008	0.3	8
69	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	3.8	8
68	Dependence of gold nanoparticle radiosensitization on cell geometry. *Nanoscale*, **2017**, 9, 5843-5853	7.7	41
67	Flagged uniform particle splitting for variance reduction in proton and carbon ion track-structure simulations. *Physics in Medicine and Biology*, **2017**, 62, 5908-5925	3.8	7

66	Validation of the radiobiology toolkit TOPAS-nBio in simple DNA geometries. *Physica Medica*, **2017**, 33, 207-215	2.7	47
65	Limitations of analytical dose calculations for small field proton radiosurgery. *Physics in Medicine and Biology*, **2017**, 62, 246-257	3.8	6
64	A general mechanistic model enables predictions of the biological effectiveness of different qualities of radiation. *Scientific Reports*, **2017**, 7, 10790	4.9	32
63	Biological and dosimetric characterisation of spatially fractionated proton minibeams. *Physics in Medicine and Biology*, **2017**, 62, 9260-9281	3.8	13
62	Time-resolved diode dosimetry calibration through Monte Carlo modeling for in vivo passive scattered proton therapy range verification. *Journal of Applied Clinical Medical Physics*, **2017**, 18, 200-205	2.3	2
61	Recent developments and comprehensive evaluations of a GPU-based Monte Carlo package for proton therapy. *Physics in Medicine and Biology*, **2016**, 61, 7347-7362	3.8	25
60	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	3.8	23
59	Automated Monte Carlo Simulation of Proton Therapy Treatment Plans. *Technology in Cancer Research and Treatment*, **2016**, 15, NP35-NP46	2.7	18
58	Roadmap to Clinical Use of Gold Nanoparticles for Radiation Sensitization. *International Journal of Radiation Oncology Biology Physics*, **2016**, 94, 189-205	4	132
57	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	4.4	1
56	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	4.4	3
55	WE-H-BRA-07: Mechanistic Modelling of the Relative Biological Effectiveness of Heavy Charged Particles. *Medical Physics*, **2016**, 43, 3844-3844	4.4	
54	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	4.4	
53	TH-CD-201-07: Experimentally Investigating Proton Energy Deposition On the Microscopic Scale Using Fluorescence Nuclear Track Detectors. *Medical Physics*, **2016**, 43, 3870-3871	4.4	
52	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	4.4	
51	WE-DE-202-00: Connecting Radiation Physics with Computational Biology. *Medical Physics*, **2016**, 43, 3815-3815	4.4	
50	WE-AB-207B-06: Dose and Biological Uncertainties in Sarcoma. *Medical Physics*, **2016**, 43, 3805-3805	4.4	
49	WE-DE-202-01: Connecting Nanoscale Physics to Initial DNA Damage Through Track Structure Simulations. *Medical Physics*, **2016**, 43, 3815-3815	4.4	

48	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 RayStation□ Treatment Planning System. *Medical Physics*, **2016**, 43, 3727-3728	4.4	
47	Poster - 16: Time-resolved diode dosimetry for in vivo proton therapy range verification: calibration through numerical modeling. *Medical Physics*, **2016**, 43, 4939-4939	4.4	
46	Mechanistic Modelling of DNA Repair and Cellular Survival Following Radiation-Induced DNA Damage. *Scientific Reports*, **2016**, 6, 33290	4.9	50
45	Dosimetric Uncertainties and Their Impact on Treatment Planning in Stereotactic Proton Radiosurgery. *International Journal of Radiation Oncology Biology Physics*, **2016**, 96, E618	4	2
44	Dose enhancement effects to the nucleus and mitochondria from gold nanoparticles in the cytosol. *Physics in Medicine and Biology*, **2016**, 61, 5993-6010	3.8	36
43	Validation of a GPU-based Monte Carlo code (gPMC) for proton radiation therapy: clinical cases study. *Physics in Medicine and Biology*, **2015**, 60, 2257-69	3.8	38
42	Extension of TOPAS for the simulation of proton radiation effects considering molecular and cellular endpoints. *Physics in Medicine and Biology*, **2015**, 60, 5053-70	3.8	46
41	A phenomenological relative biological effectiveness (RBE) model for proton therapy based on all published in vitro cell survival data. *Physics in Medicine and Biology*, **2015**, 60, 8399-416	3.8	184
40	Gold nanoparticle induced vasculature damage in radiotherapy: Comparing protons, megavoltage photons, and kilovoltage photons. *Medical Physics*, **2015**, 42, 5890-902	4.4	36
39	Biological modeling of gold nanoparticle enhanced radiotherapy for proton therapy. *Physics in Medicine and Biology*, **2015**, 60, 4149-68	3.8	85
38	Assessing the Clinical Impact of Approximations in Analytical Dose Calculations for Proton Therapy. *International Journal of Radiation Oncology Biology Physics*, **2015**, 92, 1157-1164	4	63
37	TU-F-CAMPUS-T-04: Using Gold Nanoparticles to Target Mitochondria in Radiation Therapy. *Medical Physics*, **2015**, 42, 3644-3644	4.4	2
36	SU-E-T-135: Assessing the Clinical Impact of Approximations in Analytical Dose Calculations for Proton Therapy. *Medical Physics*, **2015**, 42, 3362-3362	4.4	
35	SU-F-BRD-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	4.4	1
34	SU-E-T-673: Recent Developments and Comprehensive Validations of a GPU-Based Proton Monte Carlo Simulation Package, GPMC. *Medical Physics*, **2015**, 42, 3491-3491	4.4	
33	Site-specific range uncertainties caused by dose calculation algorithms for proton therapy. *Physics in Medicine and Biology*, **2014**, 59, 4007-31	3.8	84
32	Comparing gold nano-particle enhanced radiotherapy with protons, megavoltage photons and kilovoltage photons: a Monte Carlo simulation. *Physics in Medicine and Biology*, **2014**, 59, 7675-89	3.8	114
31	Search for nucleon decay via n->[bover □]0 and p->[bover □]+ in Super-Kamiokande. *Physical Review Letters*, **2014**, 113, 121802	7.4	28

30	Dosimetric feasibility of real-time MRI-guided proton therapy. *Medical Physics*, **2014**, 41, 111713	4.4	48
29	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	4.4	2
28	SU-E-T-464: On the Equivalence of the Quality Correction Factor for Pencil Beam Scanning Proton Therapy. *Medical Physics*, **2014**, 41, 333-333	4.4	1
27	TH-A-19A-02: Expanding TOPAS Towards Biological Modeling. *Medical Physics*, **2014**, 41, 533-533	4.4	
26	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	4.4	
25	TH-A-19A-06: Site-Specific Comparison of Analytical and Monte Carlo Based Dose Calculations. *Medical Physics*, **2014**, 41, 534-534	4.4	
24	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	4.4	
23	WE-G-BRE-02: Biological Modeling of Gold Nanoparticle Radiosensitization for Proton Therapy. *Medical Physics*, **2014**, 41, 517-517	4.4	
22	WE-G-BRE-04: Gold Nanoparticle Induced Vasculature Damage for Proton Therapy: Monte Carlo Simulation. *Medical Physics*, **2014**, 41, 517-517	4.4	
21	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	4.4	23
20	Evidence for the appearance of atmospheric tau neutrinos in super-Kamiokande. *Physical Review Letters*, **2013**, 110, 181802	7.4	61
19	Experimental validation of the TOPAS Monte Carlo system for passive scattering proton therapy. *Medical Physics*, **2013**, 40, 121719	4.4	75
18	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	4.4	2
17	SU-E-T-404: Quantification of Proton Dose Enhancement Resulting From Gold Nanoparticles. *Medical Physics*, **2013**, 40, 297-297	4.4	
16	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	4.4	
15	TU-A-108-01: Four-Dimensional Monte Carlo Using the TOPAS TOol for PArticle Simulation. *Medical Physics*, **2013**, 40, 419-419	4.4	
14	WE-C-108-07: Optimal Parameters for Variance Reduction in Monte Carlo Simulations for Proton Therapy. *Medical Physics*, **2013**, 40, 475-475	4.4	
13	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	4.4	

12	Search for GUT monopoles at Super-Kamiokande. *Astroparticle Physics*, **2012**, 36, 131-136	2.4	13
11	TOPAS: an innovative proton Monte Carlo platform for research and clinical applications. *Medical Physics*, **2012**, 39, 6818-37	4.4	435
10	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, 6671-80	3.8	12
9	Range uncertainty in proton therapy due to variable biological effectiveness. *Physics in Medicine and Biology*, **2012**, 57, 1159-72	3.8	160
8	SU-E-T-475: Nano-Dosimetric Track Structure Scoring including Biological Modeling with TOPAS-NBio. *Medical Physics*, **2012**, 39, 3814	4.4	3
7	SU-E-T-500: Pencil-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	4.4	3
6	SU-E-T-473: Performance Assessment of the TOPAS Tool for Particle Simulation for Proton Therapy Applications. *Medical Physics*, **2012**, 39, 3814	4.4	
5	SU-E-T-470: Comparison of Proton Treatment Planning and Monte Carlo Calculation Using TOPAS for Liver Cancer. *Medical Physics*, **2012**, 39, 3813	4.4	
4	WE-C-BRB-07: Benchmarking of the TOPAS Monte Carlo System against Phantom Dose Measurements in Proton Therapy. *Medical Physics*, **2012**, 39, 3945-3945	4.4	
3	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	4.4	
2	Difference in direct charge-parity violation between charged and neutral B meson decays. *Nature*, **2008**, 452, 332-5	50.4	86
1	Measurement of branching fractions and polarization in B-->phiK(*) decays. *Physical Review Letters*, **2003**, 91, 201801	7.4	96