Harald Paganetti

List of Publications by Year
in descending order

119 papers	8,129 citations	61857 43 h-index	49773 87 g-index
123 all docs	123 docs citations	123 times ranked	4215 citing authors

#	Article	IF	Citations
1	Range uncertainties in proton therapy and the role of Monte Carlo simulations. Physics in Medicine and Biology, 2012, 57, R99-R117.	1.6	948
2	Relative biological effectiveness (RBE) values for proton beam therapy. International Journal of Radiation Oncology Biology Physics, 2002, 53, 407-421.	0.4	776
3	Relative biological effectiveness (RBE) values for proton beam therapy. Variations as a function of biological endpoint, dose, and linear energy transfer. Physics in Medicine and Biology, 2014, 59, R419-R472.	1.6	680
4	Patient Study of In Vivo Verification of Beam Delivery and Range, Using Positron Emission Tomography and Computed Tomography Imaging After Proton Therapy. International Journal of Radiation Oncology Biology Physics, 2007, 68, 920-934.	0.4	346
5	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
6	Clinical implementation of full Monte Carlo dose calculation in proton beam therapy. Physics in Medicine and Biology, 2008, 53, 4825-4853.	1.6	223
7	Nuclear physics in particle therapy: a review. Reports on Progress in Physics, 2016, 79, 096702.	8.1	217
8	Range uncertainty in proton therapy due to variable biological effectiveness. Physics in Medicine and Biology, 2012, 57, 1159-1172.	1.6	197
9	Report of the <scp>AAPM TG</scp>â€256 on the relative biological effectiveness of proton beams in radiation therapy. Medical Physics, 2019, 46, e53-e78.	1.6	189
10	Motion Interplay as a Function of Patient Parameters and Spot Size in Spot Scanning Proton Therapy for Lung Cancer. International Journal of Radiation Oncology Biology Physics, 2013, 86, 380-386.	0.4	168
11	Metal Artifact Reduction in CT: Where Are We After Four Decades?. IEEE Access, 2016, 4, 5826-5849.	2.6	164
12	Variations in Linear Energy Transfer Within Clinical Proton Therapy Fields and the Potential for Biological Treatment Planning. International Journal of Radiation Oncology Biology Physics, 2011, 80, 1559-1566.	0.4	153
13	Reoptimization of Intensity Modulated Proton Therapy Plans Based on Linear Energy Transfer. International Journal of Radiation Oncology Biology Physics, 2016, 96, 1097-1106.	0.4	140
14	GPU-based fast Monte Carlo dose calculation for proton therapy. Physics in Medicine and Biology, 2012, 57, 7783-7797.	1.6	139
15	National Cancer Institute Workshop on Proton Therapy for Children: Considerations Regarding Brainstem Injury. International Journal of Radiation Oncology Biology Physics, 2018, 101, 152-168.	0.4	138
16	Linear Energy Transfer-Guided Optimization in Intensity Modulated Proton Therapy: Feasibility Study and Clinical Potential. International Journal of Radiation Oncology Biology Physics, 2013, 87, 216-222.	0.4	137
17	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
18	Incidence of CNS Injury for a Cohort of 111 Patients Treated With Proton Therapy for Medulloblastoma: LET and RBE Associations for Areas of Injury. International Journal of Radiation Oncology Biology Physics, 2016, 95, 287-296.	0.4	101

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19	Deficiency in Homologous Recombination Renders Mammalian Cells More Sensitive to Proton Versus Photon Irradiation. International Journal of Radiation Oncology Biology Physics, 2014, 88, 175-181.	0.4	95
20	Robust Proton Treatment Planning: Physical and Biological Optimization. Seminars in Radiation Oncology, 2018, 28, 88-96.	1.0	90
21	Clinical consequences of relative biological effectiveness variations in proton radiotherapy of the prostate, brain and liver. Physics in Medicine and Biology, 2013, 58, 2103-2117.	1.6	84
22	Asymptomatic Late-phase Radiographic Changes Among Chest-Wall Patients Are Associated With a Proton RBE Exceeding 1.1. International Journal of Radiation Oncology Biology Physics, 2018, 101, 809-819.	0.4	84
23	Lung Cancer Cell Line Screen Links Fanconi Anemia/BRCA Pathway Defects to Increased Relative Biological Effectiveness of Proton Radiation. International Journal of Radiation Oncology Biology Physics, 2015, 91, 1081-1089.	0.4	77
24	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
25	Mechanistic Modelling of DNA Repair and Cellular Survival Following Radiation-Induced DNA Damage. Scientific Reports, 2016, 6, 33290.	1.6	72
26	Patterns of Failure After Proton Therapy in Medulloblastoma; Linear Energy Transfer Distributions and Relative Biological Effectiveness Associations for Relapses. International Journal of Radiation Oncology Biology Physics, 2014, 88, 655-663.	0.4	71
27	Quantification of Proton Dose Calculation Accuracy in the Lung. International Journal of Radiation Oncology Biology Physics, 2014, 89, 424-430.	0.4	70
28	Validation of the radiobiology toolkit TOPAS-nBio in simple DNA geometries. Physica Medica, 2017, 33, 207-215.	0.4	70
29	Roadmap: proton therapy physics and biology. Physics in Medicine and Biology, 2021, 66, 05RM01.	1.6	67
30	Monte Carlo simulations with time-dependent geometries to investigate effects of organ motion with high temporal resolution. International Journal of Radiation Oncology Biology Physics, 2004, 60, 942-950.	0.4	65
31	Proton radiography and proton computed tomography based on time-resolved dose measurements. Physics in Medicine and Biology, 2013, 58, 8215-8233.	1.6	61
32	Relating Proton Treatments to Photon Treatments via the Relative Biological Effectivenessâ€"Should We Revise Current Clinical Practice?. International Journal of Radiation Oncology Biology Physics, 2015, 91, 892-894.	0.4	58
33	Technology for Innovation in Radiation Oncology. International Journal of Radiation Oncology Biology Physics, 2015, 93, 485-492.	0.4	58
34	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
35	Prediction of Treatment Response for Combined Chemo- and Radiation Therapy for Non-Small Cell Lung Cancer Patients Using a Bio-Mathematical Model. Scientific Reports, 2017, 7, 13542.	1.6	56
36	Brainstem Injury in Pediatric Patients With Posterior Fossa Tumors Treated With Proton Beam Therapy and Associated Dosimetric Factors. International Journal of Radiation Oncology Biology Physics, 2018, 100, 719-729.	0.4	55

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37	Proton Relative Biological Effectiveness â€“ Uncertainties and Opportunities. International Journal of Particle Therapy, 2018, 5, 2-14.	0.9	51
38	End-of-Range Radiobiological Effect on Rib Fractures in Patients Receiving Proton Therapy for Breast Cancer. International Journal of Radiation Oncology Biology Physics, 2020, 107, 449-454.	0.4	51
39	A general mechanistic model enables predictions of the biological effectiveness of different qualities of radiation. Scientific Reports, 2017, 7, 10790.	1.6	50
40	Changes in tumor cell response due to prolonged dose delivery times in fractionated radiation therapy. International Journal of Radiation Oncology Biology Physics, 2005, 63, 892-900.	0.4	49
41	Radiobiological significance of beamline dependent proton energy distributions in a spread-out Bragg peak. Medical Physics, 2000, 27, 1119-1126.	1.6	46
42	Can We Advance Proton Therapy for Prostate? Considering Alternative Beam Angles and Relative Biological Effectiveness Variations When Comparing Against Intensity Modulated Radiation Therapy. International Journal of Radiation Oncology Biology Physics, 2016, 95, 454-464.	0.4	46
43	LET-weighted doses effectively reduce biological variability in proton radiotherapy planning. Physics in Medicine and Biology, 2018, 63, 225009.	1.6	46
44	Evaluation of CBCT scatter correction using deep convolutional neural networks for head and neck adaptive proton therapy. Physics in Medicine and Biology, 2020, 65, 245022.	1.6	44
45	Proton Treatment Techniques for Posterior Fossa Tumors: Consequences for Linear Energy Transfer and Dose-Volume Parameters for the Brainstem and Organs at Risk. International Journal of Radiation Oncology Biology Physics, 2017, 97, 401-410.	0.4	43
46	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
47	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
48	Variable Proton Relative Biological Effectiveness: How Do We Move Forward?. International Journal of Radiation Oncology Biology Physics, 2016, 95, 56-58.	0.4	42
49	Relating the proton relative biological effectiveness to tumor control and normal tissue complication probabilities assuming interpatient variability in Î±/Î². Acta OncolÃ³gica, 2017, 56, 1379-1386.	0.8	41
50	Adaptive proton therapy. Physics in Medicine and Biology, 2021, 66, 22TR01.	1.6	40
51	Nuclear interactions of 160 MeV protons stopping in copper: A test of Monte Carlo nuclear models. Medical Physics, 1999, 26, 2597-2601.	1.6	39
52	Assessment of the Risk for Developing a Second Malignancy From Scattered and Secondary Radiation In Radiation Therapy. Health Physics, 2012, 103, 652-661.	0.3	39
53	Geometrical structures for radiation biology research as implemented in the TOPAS-nBio toolkit. Physics in Medicine and Biology, 2018, 63, 175018.	1.6	36
54	Modelling variable proton relative biological effectiveness for treatment planning. British Journal of Radiology, 2020, 93, 20190334.	1.0	35

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55	Field size dependence of the output factor in passively scattered proton therapy: Influence of range, modulation, air gap, and machine settings. Medical Physics, 2009, 36, 3205-3210.	1.6	33
56	Disruption of SLX4-MUS81 Function IncreasesÂthe Relative Biological Effectiveness of Proton Radiation. International Journal of Radiation Oncology Biology Physics, 2016, 95, 78-85.	0.4	33
57	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
58	Patient-Specific Tumor Growth Trajectories Determine Persistent and Resistant Cancer Cell Populations during Treatment with Targeted Therapies. Cancer Research, 2019, 79, 3776-3788.	0.4	32
59	The risk for developing a secondary cancer after breast radiation therapy: Comparison of photon and proton techniques. Radiotherapy and Oncology, 2020, 149, 212-218.	0.3	32
60	Relative Biological Effectiveness Uncertainties and Implications for Beam Arrangements and Dose Constraints in Proton Therapy. Seminars in Radiation Oncology, 2018, 28, 256-263.	1.0	32
61	Range verification of passively scattered proton beams based on prompt gamma time patterns. Physics in Medicine and Biology, 2014, 59, 4181-4195.	1.6	30
62	Volumetric and actuarial analysis of brain necrosis in proton therapy using a novel mixture cure model. Radiotherapy and Oncology, 2020, 142, 154-161.	0.3	30
63	Cellular Response to Proton Irradiation: A Simulation Study with TOPAS-nBio. Radiation Research, 2020, 194, 9.	0.7	30
64	Anatomic changes in head and neck intensity-modulated proton therapy: Comparison between robust optimization and online adaptation. Radiotherapy and Oncology, 2021, 159, 39-47.	0.3	30
65	Evaluating Intensity Modulated Proton Therapy Relative to Passive Scattering Proton Therapy for Increased Vertebral Column Sparing in Craniospinal Irradiation in Growing Pediatric Patients. International Journal of Radiation Oncology Biology Physics, 2017, 98, 37-46.	0.4	29
66	Dose assessment for the fetus considering scattered and secondary radiation from photon and proton therapy when treating a brain tumor of the mother. Physics in Medicine and Biology, 2016, 61, 683-695.	1.6	28
67	Comparison of weekly and daily online adaptation for head and neck intensity-modulated proton therapy. Physics in Medicine and Biology, 2021, 66, 055023.	1.6	28
68	The microdosimetric extension in TOPAS: development and comparison with published data. Physics in Medicine and Biology, 2019, 64, 145004.	1.6	26
69	A tumor-immune interaction model for hepatocellular carcinoma based on measured lymphocyte counts in patients undergoing radiotherapy. Radiotherapy and Oncology, 2020, 151, 73-81.	0.3	26
70	4D blood flow model for dose calculation to circulating blood and lymphocytes. Physics in Medicine and Biology, 2020, 65, 055008.	1.6	25
71	Mechanisms and Review of Clinical Evidence of Variations in Relative Biological Effectiveness in Proton Therapy. International Journal of Radiation Oncology Biology Physics, 2022, 112, 222-236.	0.4	25
72	Geometrical splitting technique to improve the computational efficiency in Monte Carlo calculations for proton therapy. Medical Physics, 2013, 40, 041718.	1.6	24

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73	Synergizing medical imaging and radiotherapy with deep learning. Machine Learning: Science and Technology, 2020, 1, 021001.	2.4	24
74	Roadmap: helium ion therapy. Physics in Medicine and Biology, 2022, 67, 15TR02.	1.6	24
75	Automated Monte Carlo Simulation of Proton Therapy Treatment Plans. Technology in Cancer Research and Treatment, 2016, 15, NP35-NP46.	0.8	23
76	Validation of Effective Dose as a Better Predictor of Radiation Pneumonitis Risk Than Mean Lung Dose: Secondary Analysis of a Randomized Trial. International Journal of Radiation Oncology Biology Physics, 2019, 103, 403-410.	0.4	23
77	The PTSim and TOPAS Projects, Bringing Geant4 to the Particle Therapy Clinic. Progress in Nuclear Science and Technology, 2011, 2, 912-917.	0.3	22
78	HEDOSâ€"a computational tool to assess radiation dose to circulating blood cells during external beam radiotherapy based on whole-body blood flow simulations. Physics in Medicine and Biology, 2021, 66, 164001.	1.6	20
79	Proton radiation in the management of localized cancer. Expert Review of Medical Devices, 2010, 7, 275-285.	1.4	19
80	Mathematical Modeling to Simulate the Effect of Adding Radiation Therapy to Immunotherapy and Application to Hepatocellular Carcinoma. International Journal of Radiation Oncology Biology Physics, 2022, 112, 1055-1062.	0.4	19
81	Spread-out antiproton beams deliver poor physical dose distributions for radiation therapy. Radiotherapy and Oncology, 2010, 95, 79-86.	0.3	18
82	Predicting Patient-specific Dosimetric Benefits of Proton Therapy for Skull-base Tumors Using a Geometric Knowledge-based Method. International Journal of Radiation Oncology Biology Physics, 2017, 97, 1087-1094.	0.4	18
83	Differential inflammatory response dynamics in normal lung following stereotactic body radiation therapy with protons versus photons. Radiotherapy and Oncology, 2019, 136, 169-175.	0.3	18
84	Report of a National Cancer Institute special panel: Characterization of the physical parameters of particle beams for biological research. Medical Physics, 2019, 46, e37-e52.	1.6	15
85	Hydrogel rectum-prostate spacers mitigate the uncertainties in proton relative biological effectiveness associated with anterior-oblique beams. Acta OncolÃ³gica, 2017, 56, 575-581.	0.8	14
86	Can differences in linear energy transfer and thus relative biological effectiveness compromise the dosimetric advantage of intensity-modulated proton therapy as compared to passively scattered proton therapy?. Acta OncolÃ³gica, 2018, 57, 1259-1264.	0.8	14
87	CT-on-Rails Versus In-Room CBCT for Online Daily Adaptive Proton Therapy of Head-and-Neck Cancers. Cancers, 2021, 13, 5991.	1.7	14
88	Consistency in quality correction factors for ionization chamber dosimetry in scanned proton beam therapy. Medical Physics, 2017, 44, 4919-4927.	1.6	13
89	Impact of potentially variable RBE in liver proton therapy. Physics in Medicine and Biology, 2018, 63, 195001.	1.6	13
90	A dynamic blood flow model to compute absorbed dose to circulating blood and lymphocytes in liver external beam radiotherapy. Physics in Medicine and Biology, 2022, 67, 045010.	1.6	13

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91	Brain-Specific Relative Biological Effectiveness of Protons Based on Long-term Outcome of Patients With Nasopharyngeal Carcinoma. International Journal of Radiation Oncology Biology Physics, 2021, 110, 984-992.	0.4	12
92	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
93	The impact of variable relative biological effectiveness in proton therapy for left-sided breast cancer when estimating normal tissue complications in the heart and lung. Physics in Medicine and Biology, 2021, 66, 035023.	1.6	10
94	Biomathematical Optimization of Radiation Therapy in the Era of Targeted Agents. International Journal of Radiation Oncology Biology Physics, 2017, 97, 13-17.	0.4	9
95	Validation of a model for physical dose variations in irregularly moving targets treated with carbon ion beams. Medical Physics, 2019, 46, 3663-3673.	1.6	9
96	Monte Carlo methods for device simulations in radiation therapy. Physics in Medicine and Biology, 2021, 66, 18TR01.	1.6	9
97	Feasibility of Using Distal Endpoints for In-Room PET Range Verification of Proton Therapy. IEEE Transactions on Nuclear Science, 2013, 60, 3290-3297.	1.2	7
98	Modeling Resistance and Recurrence Patterns of Combined Targetedâ€“Chemoradiotherapy Predicts Benefit of Shorter Induction Period. Cancer Research, 2020, 80, 5121-5133.	0.4	7
99	Perspectives on the model-based approach to proton therapy trials: A retrospective study of a lung cancer randomized trial. Radiotherapy and Oncology, 2020, 147, 8-14.	0.3	7
100	Limitations of analytical dose calculations for small field proton radiosurgery. Physics in Medicine and Biology, 2017, 62, 246-257.	1.6	6
101	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
102	Assessing second cancer risk after primary cancer treatment with photon or proton radiotherapy. Cancer, 2020, 126, 3397-3399.	2.0	6
103	A mesh-based model of liver vasculature: implications for improved radiation dosimetry to liver parenchyma for radiopharmaceuticals. EJNMMI Physics, 2022, 9, 28.	1.3	6
104	Impact of uncertainties in range and RBE on small field proton therapy. Physics in Medicine and Biology, 2019, 64, 205005.	1.6	5
105	Feasibility of using distal endpoints for In-room PET Range Verification of Proton Therapy. , 2012, 60, 3290-3297.		4
106	Why Is Proton Beam Therapy So Controversial?. Journal of the American College of Radiology, 2015, 12, 1318-1319.	0.9	4
107	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
108	Lifetime Increased Cancer Risk in Mice Following Exposure to Clinical Proton Beamâ€“Generated Neutrons. International Journal of Radiation Oncology Biology Physics, 2014, 89, 161-166.	0.4	3

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109	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
110	DICOM-RT Ion interface to utilize MC simulations in routine clinical workflow for proton pencil beam radiotherapy. Physica Medica, 2020, 74, 1-10.	0.4	2
111	Attitudes of radiation oncologists toward palliative and supportive care in the United States: Report on National Membership Survey by the American Society for Radiation Oncology (ASTRO).. Journal of Clinical Oncology, 2016, 34, 105-105.	0.8	2
112	Foreword: Hadron Therapy â€" From Yesterday's Physics Laboratory to Today's Modern Clinical Routine. Technology in Cancer Research and Treatment, 2003, 2, 353-354.	0.8	1
113	Preliminary Study of Proton Radiography Imaging Qualities Using GEANT4 Monte Carlo Simulations. Nuclear Technology, 2011, 175, 6-10.	0.7	1
114	â€œCancer risk after breast proton therapy considering physiological and radiobiological uncertaintiesâ€•by Raptis et al. (Physica Medica 76 (2020) 1â€"6). Physica Medica, 2020, 80, 274-276.	0.4	0
115	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
116	Spatiotemporal optimisation of prostate intensity modulated proton therapy (IMPT) treatments. Physics in Medicine and Biology, 2022, 67, 045005.	1.6	0
117	Predictive Modeling of Survival and Toxicity in Patients With Hepatocellular Carcinoma After Radiotherapy. JCO Clinical Cancer Informatics, 2022, 6, e2100169.	1.0	0
118	Introduction and History of Proton Therapy. , 2015, , .		0
119	Detector Simulation Challenges for Future Accelerator Experiments. Frontiers in Physics, 0, 10, .	1.0	0