Harald Paganetti

List of Publications by Citations

110 papers	5,699 citations	35 h-index	74 g-index
123 ext. papers	7,112 ext. citations	2.8 avg, IF	6.63 L-index

#	Paper	IF	Citations
110	Range uncertainties in proton therapy and the role of Monte Carlo simulations. *Physics in Medicine and Biology*, **2012**, 57, R99-117	3.8	728
109	Relative biological effectiveness (RBE) values for proton beam therapy. *International Journal of Radiation Oncology Biology Physics*, **2002**, 53, 407-21	4	619
108	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, R419-72	3.8	516
107	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, 920-34	4	286
106	Clinical implementation of full Monte Carlo dose calculation in proton beam therapy. *Physics in Medicine and Biology*, **2008**, 53, 4825-53	3.8	191
105	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
104	Range uncertainty in proton therapy due to variable biological effectiveness. *Physics in Medicine and Biology*, **2012**, 57, 1159-72	3.8	160
103	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, 380-6	4	144
102	Nuclear physics in particle therapy: a review. *Reports on Progress in Physics*, **2016**, 79, 096702	14.4	143
101	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, 1559-66	4	126
100	GPU-based fast Monte Carlo dose calculation for proton therapy. *Physics in Medicine and Biology*, **2012**, 57, 7783-97	3.8	111
99	Reoptimization of Intensity Modulated Proton Therapy Plans Based on Linear Energy Transfer. *International Journal of Radiation Oncology Biology Physics*, **2016**, 96, 1097-1106	4	101
98	Report of the AAPM TG-256 on the relative biological effectiveness of proton beams in radiation therapy. *Medical Physics*, **2019**, 46, e53-e78	4.4	98
97	Metal Artifact Reduction in CT: Where Are We After Four Decades?. *IEEE Access*, **2016**, 4, 5826-5849	3.5	96
96	Linear energy transfer-guided optimization in intensity modulated proton therapy: feasibility study and clinical potential. *International Journal of Radiation Oncology Biology Physics*, **2013**, 87, 216-22	4	96
95	Deficiency in homologous recombination renders Mammalian cells more sensitive to proton versus photon irradiation. *International Journal of Radiation Oncology Biology Physics*, **2014**, 88, 175-81	4	81
94	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	4	79

93	National Cancer Institute Workshop on Proton Therapy for Children: Considerations Regarding Brainstem Injury. *International Journal of Radiation Oncology Biology Physics*, **2018**, 101, 152-168	4	76
92	Quantification of proton dose calculation accuracy in the lung. *International Journal of Radiation Oncology Biology Physics*, **2014**, 89, 424-30	4	64
91	Clinical consequences of relative biological effectiveness variations in proton radiotherapy of the prostate, brain and liver. *Physics in Medicine and Biology*, **2013**, 58, 2103-17	3.8	64
90	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
89	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, 1081-9	4	62
88	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, 942-50	4	58
87	Robust Proton Treatment Planning: Physical and Biological Optimization. *Seminars in Radiation Oncology*, **2018**, 28, 88-96	5.5	57
86	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, 655-63	4	56
85	Proton radiography and proton computed tomography based on time-resolved dose measurements. *Physics in Medicine and Biology*, **2013**, 58, 8215-33	3.8	53
84	Mechanistic Modelling of DNA Repair and Cellular Survival Following Radiation-Induced DNA Damage. *Scientific Reports*, **2016**, 6, 33290	4.9	50
83	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	4	49
82	Validation of the radiobiology toolkit TOPAS-nBio in simple DNA geometries. *Physica Medica*, **2017**, 33, 207-215	2.7	47
81	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
80	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	4	44
79	Technology for Innovation in Radiation Oncology. *International Journal of Radiation Oncology Biology Physics*, **2015**, 93, 485-92	4	43
78	Radiobiological significance of beamline dependent proton energy distributions in a spread-out Bragg peak. *Medical Physics*, **2000**, 27, 1119-26	4.4	40
77	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
76	Nuclear interactions of 160 MeV protons stopping in copper: a test of Monte Carlo nuclear models. *Medical Physics*, **1999**, 26, 2597-601	4.4	35

75	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	4	34
74	Variable Proton Relative Biological Effectiveness: How Do We Move Forward?. *International Journal of Radiation Oncology Biology Physics*, **2016**, 95, 56-58	4	34
73	Proton Relative Biological Effectiveness - Uncertainties and Opportunities. *International Journal of Particle Therapy*, **2018**, 5, 2-14	1.5	33
72	A general mechanistic model enables predictions of the biological effectiveness of different qualities of radiation. *Scientific Reports*, **2017**, 7, 10790	4.9	32
71	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	4	32
70	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	4	30
69	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, 3205-10	4.4	29
68	LET-weighted doses effectively reduce biological variability in proton radiotherapy planning. *Physics in Medicine and Biology*, **2018**, 63, 225009	3.8	29
67	Range verification of passively scattered proton beams based on prompt gamma time patterns. *Physics in Medicine and Biology*, **2014**, 59, 4181-95	3.8	28
66	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	4.9	26
65	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
64	Relating the proton relative biological effectiveness to tumor control and normal tissue complication probabilities assuming interpatient variability in *Acta Oncologica*, **2017**, 56, 1379-1386	3.2	26
63	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
62	Assessment of the risk for developing a second malignancy from scattered and secondary radiation in radiation therapy. *Health Physics*, **2012**, 103, 652-61	2.3	24
61	Disruption of SLX4-MUS81 Function Increases the Relative Biological Effectiveness of Proton Radiation. *International Journal of Radiation Oncology Biology Physics*, **2016**, 95, 78-85	4	23
60	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	4	21
59	Geometrical splitting technique to improve the computational efficiency in Monte Carlo calculations for proton therapy. *Medical Physics*, **2013**, 40, 041718	4.4	21
58	Relative Biological Effectiveness Uncertainties and Implications for Beam Arrangements and Dose Constraints in Proton Therapy. *Seminars in Radiation Oncology*, **2018**, 28, 256-263	5.5	20

57	Patient-Specific Tumor Growth Trajectories Determine Persistent and Resistant Cancer Cell Populations during Treatment with Targeted Therapies. *Cancer Research*, **2019**, 79, 3776-3788	10.1	19
56	Volumetric and actuarial analysis of brain necrosis in proton therapy using a novel mixture cure model. *Radiotherapy and Oncology*, **2020**, 142, 154-161	5.3	19
55	Automated Monte Carlo Simulation of Proton Therapy Treatment Plans. *Technology in Cancer Research and Treatment*, **2016**, 15, NP35-NP46	2.7	18
54	Roadmap: proton therapy physics and biology. *Physics in Medicine and Biology*, **2020**,	3.8	17
53	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	4	16
52	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	4	16
51	Modelling variable proton relative biological effectiveness for treatment planning. *British Journal of Radiology*, **2020**, 93, 20190334	3.4	16
50	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	4	16
49	Evaluation of CBCT scatter correction using deep convolutional neural networks for head and neck adaptive proton therapy. *Physics in Medicine and Biology*, **2020**,	3.8	15
48	Proton radiation in the management of localized cancer. *Expert Review of Medical Devices*, **2010**, 7, 275-85	3.5	15
47	Geometrical structures for radiation biology research as implemented in the TOPAS-nBio toolkit. *Physics in Medicine and Biology*, **2018**, 63, 175018	3.8	14
46	Spread-out antiproton beams deliver poor physical dose distributions for radiation therapy. *Radiotherapy and Oncology*, **2010**, 95, 79-86	5.3	14
45	A tumor-immune interaction model for hepatocellular carcinoma based on measured lymphocyte counts in patients undergoing radiotherapy. *Radiotherapy and Oncology*, **2020**, 151, 73-81	5.3	14
44	4D blood flow model for dose calculation to circulating blood and lymphocytes. *Physics in Medicine and Biology*, **2020**, 65, 055008	3.8	13
43	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, 683-95	3.8	13
42	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 Oncol�gica*, **2018**, 57, 1259-1264	3.2	13
41	The risk for developing a secondary cancer after breast radiation therapy: Comparison of photon and proton techniques. *Radiotherapy and Oncology*, **2020**, 149, 212-218	5.3	12
40	Hydrogel rectum-prostate spacers mitigate the uncertainties in proton relative biological effectiveness associated with anterior-oblique beams. *Acta Oncol�gica*, **2017**, 56, 575-581	3.2	11

39	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	4.4	11
38	The microdosimetric extension in TOPAS: development and comparison with published data. *Physics in Medicine and Biology*, **2019**, 64, 145004	3.8	10
37	The PTSim and TOPAS Projects, Bringing Geant4 to the Particle Therapy Clinic. *Progress in Nuclear Science and Technology*, **2011**, 2, 912-917	0.3	10
36	Cellular Response to Proton Irradiation: A Simulation Study with TOPAS-nBio. *Radiation Research*, **2020**, 194, 9-21	3.1	9
35	Synergizing medical imaging and radiotherapy with deep learning. *Machine Learning: Science and Technology*, **2020**, 1, 021001	5.1	9
34	Consistency in quality correction factors for ionization chamber dosimetry in scanned proton beam therapy. *Medical Physics*, **2017**, 44, 4919-4927	4.4	9
33	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
32	The impact of variable RBE in proton therapy for left-sided breast cancer when estimating normal tissue complications in the heart and lung. *Physics in Medicine and Biology*, **2020**,	3.8	8
31	Validation of a model for physical dose variations in irregularly moving targets treated with carbon ion beams. *Medical Physics*, **2019**, 46, 3663-3673	4.4	7
30	Adaptive proton therapy. *Physics in Medicine and Biology*, **2021**, 66,	3.8	7
29	Limitations of analytical dose calculations for small field proton radiosurgery. *Physics in Medicine and Biology*, **2017**, 62, 246-257	3.8	6
28	Feasibility of Using Distal Endpoints for In-Room PET Range Verification of Proton Therapy. *IEEE Transactions on Nuclear Science*, **2013**, 60, 3290-3297	1.7	6
27	Impact of potentially variable RBE in liver proton therapy. *Physics in Medicine and Biology*, **2018**, 63, 195001	3.8	6
26	Differential inflammatory response dynamics in normal lung following stereotactic body radiation therapy with protons versus photons. *Radiotherapy and Oncology*, **2019**, 136, 169-175	5.3	5
25	Anatomic changes in head and neck intensity-modulated proton therapy: Comparison between robust optimization and online adaptation. *Radiotherapy and Oncology*, **2021**, 159, 39-47	5.3	5
24	HEDOS-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,	3.8	5
23	Comparison of weekly and daily online adaptation for head and neck intensity-modulated proton therapy. *Physics in Medicine and Biology*, **2021**,	3.8	5
22	Impact of uncertainties in range and RBE on small field proton therapy. *Physics in Medicine and Biology*, **2019**, 64, 205005	3.8	4

21	Modeling Resistance and Recurrence Patterns of Combined Targeted-Chemoradiotherapy Predicts Benefit of Shorter Induction Period. *Cancer Research*, **2020**, 80, 5121-5133	10.1	4
20	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	5.3	4
19	Lifetime increased cancer risk in mice following exposure to clinical proton beam-generated neutrons. *International Journal of Radiation Oncology Biology Physics*, **2014**, 89, 161-6	4	3
18	Why Is Proton Beam Therapy So Controversial?. *Journal of the American College of Radiology*, **2015**, 12, 1318-9	3.5	3
17	Feasibility of Using Distal Endpoints for In-room PET Range Verification of Proton Therapy. *IEEE Transactions on Nuclear Science*, **2013**, 60, 3290-3297	1.7	3
16	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**,	3.8	3
15	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	4	3
14	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
13	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
12	CT-on-Rails Versus In-Room CBCT for Online Daily Adaptive Proton Therapy of Head-and-Neck Cancers. *Cancers*, **2021**, 13,	6.6	2
11	Mechanisms and Review of Clinical Evidence of Variations in Relative Biological Effectiveness in Proton Therapy. *International Journal of Radiation Oncology Biology Physics*, **2021**,	4	2
10	Monte Carlo methods for device simulations in radiation therapy. *Physics in Medicine and Biology*, **2021**, 66,	3.8	2
9	Preliminary Study of Proton Radiography Imaging Qualities Using GEANT4 Monte Carlo Simulations. *Nuclear Technology*, **2011**, 175, 6-10	1.4	1
8	Foreword: Hadron therapy--from yesterday's physics laboratory to today's modern clinical routine. *Technology in Cancer Research and Treatment*, **2003**, 2, 353-4	2.7	1
7	Mathematical modeling to simulate the effect of adding radiotherapy to immunotherapy and application to hepatocellular carcinoma. *International Journal of Radiation Oncology Biology Physics*, **2021**,	4	1
6	DICOM-RT Ion interface to utilize MC simulations in routine clinical workflow for proton pencil beam radiotherapy. *Physica Medica*, **2020**, 74, 1-10	2.7	1
5	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	
4	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	2.2	

3	"Cancer risk after breast proton therapy considering physiological and radiobiological uncertainties" by Raptis et al. (Physica Medica 76 (2020) 1-6). *Physica Medica*, **2020**, 80, 274-276	2.7
2	Predictive Modeling of Survival and Toxicity in Patients With Hepatocellular Carcinoma After Radiotherapy.. *JCO Clinical Cancer Informatics*, **2022**, 6, e2100169	5.2
1	A mesh-based model of liver vasculature: implications for improved radiation dosimetry to liver parenchyma for radiopharmaceuticals.. *EJNMMI Physics*, **2022**, 9, 28	4.4