Harald Paganetti

List of Publications by Citations

109 papers	8,136 citations	52 h-index	89 g-index
114 ext. papers	9,552 ext. citations	3.1 avg, IF	6.76 L-index

#	Paper	IF	Citations
109	Range uncertainties in proton therapy and the role of Monte Carlo simulations. *Physics in Medicine and Biology*, **2012**, 57, R99-117	3.8	728
108	Relative biological effectiveness (RBE) values for proton beam therapy. *International Journal of Radiation Oncology Biology Physics*, **2002**, 53, 407-21	4	619
107	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
106	A review of dosimetry studies on external-beam radiation treatment with respect to second cancer induction. *Physics in Medicine and Biology*, **2008**, 53, R193-241	3.8	311
105	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
104	Clinical implementation of full Monte Carlo dose calculation in proton beam therapy. *Physics in Medicine and Biology*, **2008**, 53, 4825-53	3.8	191
103	Proton vs carbon ion beams in the definitive radiation treatment of cancer patients. *Radiotherapy and Oncology*, **2010**, 95, 3-22	5.3	185
102	Secondary carcinogenesis in patients treated with radiation: a review of data on radiation-induced cancers in human, non-human primate, canine and rodent subjects. *Radiation Research*, **2007**, 167, 12-42	3.1	185
101	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
100	Range uncertainty in proton therapy due to variable biological effectiveness. *Physics in Medicine and Biology*, **2012**, 57, 1159-72	3.8	160
99	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
98	Nuclear physics in particle therapy: a review. *Reports on Progress in Physics*, **2016**, 79, 096702	14.4	143
97	Breathing interplay effects during proton beam scanning: simulation and statistical analysis. *Physics in Medicine and Biology*, **2009**, 54, N283-94	3.8	136
96	Physics Settings for Using the Geant4 Toolkit in Proton Therapy. *IEEE Transactions on Nuclear Science*, **2008**, 55, 1018-1025	1.7	128
95	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
94	AAPM TG 158: Measurement and calculation of doses outside the treated volume from external-beam radiation therapy. *Medical Physics*, **2017**, 44, e391-e429	4.4	125
93	Simulation of organ-specific patient effective dose due to secondary neutrons in proton radiation treatment. *Physics in Medicine and Biology*, **2005**, 50, 4337-53	3.8	115

92	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
91	PET/CT imaging for treatment verification after proton therapy: a study with plastic phantoms and metallic implants. *Medical Physics*, **2007**, 34, 419-35	4.4	111
90	Proton beams to replace photon beams in radical dose treatments. *Acta Oncologica*, **2003**, 42, 800-8	3.2	102
89	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
88	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
87	Metal Artifact Reduction in CT: Where Are We After Four Decades?. *IEEE Access*, **2016**, 4, 5826-5849	3.5	96
86	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
85	Monitoring proton radiation therapy with in-room PET imaging. *Physics in Medicine and Biology*, **2011**, 56, 4041-57	3.8	86
84	Biological modeling of gold nanoparticle enhanced radiotherapy for proton therapy. *Physics in Medicine and Biology*, **2015**, 60, 4149-68	3.8	85
83	Risk of developing second cancer from neutron dose in proton therapy as function of field characteristics, organ, and patient age. *International Journal of Radiation Oncology Biology Physics*, **2008**, 72, 228-35	4	85
82	Comparison of second cancer risk due to out-of-field doses from 6-MV IMRT and proton therapy based on 6 pediatric patient treatment plans. *Radiotherapy and Oncology*, **2011**, 98, 87-92	5.3	84
81	Should positive phase III clinical trial data be required before proton beam therapy is more widely adopted? No. *Radiotherapy and Oncology*, **2008**, 86, 148-53	5.3	83
80	Assessment of radiation-induced second cancer risks in proton therapy and IMRT for organs inside the primary radiation field. *Physics in Medicine and Biology*, **2012**, 57, 6047-61	3.8	82
79	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
78	Assessment of organ-specific neutron equivalent doses in proton therapy using computational whole-body age-dependent voxel phantoms. *Physics in Medicine and Biology*, **2008**, 53, 693-717	3.8	81
77	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
76	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
75	Metal artifacts in computed tomography for radiation therapy planning: dosimetric effects and impact of metal artifact reduction. *Physics in Medicine and Biology*, **2017**, 62, R49-R80	3.8	71

74	The risk of radiation-induced second cancers in the high to medium dose region: a comparison between passive and scanned proton therapy, IMRT and VMAT for pediatric patients with brain tumors. *Physics in Medicine and Biology*, **2014**, 59, 2883-99	3.8	66
73	Effects of Hounsfield number conversion on CT based proton Monte Carlo dose calculations. *Medical Physics*, **2007**, 34, 1439-49	4.4	66
72	Biological considerations when comparing proton therapy with photon therapy. *Seminars in Radiation Oncology*, **2013**, 23, 77-87	5.5	65
71	Optimising element choice for nanoparticle radiosensitisers. *Nanoscale*, **2016**, 8, 581-9	7.7	64
70	Quantification of proton dose calculation accuracy in the lung. *International Journal of Radiation Oncology Biology Physics*, **2014**, 89, 424-30	4	64
69	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
68	Calculation of relative biological effectiveness for proton beams using biological weighting functions. *International Journal of Radiation Oncology Biology Physics*, **1997**, 37, 719-29	4	64
67	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
66	Dose to water versus dose to medium in proton beam therapy. *Physics in Medicine and Biology*, **2009**, 54, 4399-421	3.8	63
65	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
64	Accuracy of proton beam range verification using post-treatment positron emission tomography/computed tomography as function of treatment site. *International Journal of Radiation Oncology Biology Physics*, **2011**, 79, 297-304	4	61
63	Robust Proton Treatment Planning: Physical and Biological Optimization. *Seminars in Radiation Oncology*, **2018**, 28, 88-96	5.5	57
62	Motion mitigation for lung cancer patients treated with active scanning proton therapy. *Medical Physics*, **2015**, 42, 2462-9	4.4	57
61	PET imaging for treatment verification of ion therapy: Implementation and experience at GSI Darmstadt and MGH Boston. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2008**, 591, 282-286	1.2	57
60	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
59	Assessment of out-of-field absorbed dose and equivalent dose in proton fields. *Medical Physics*, **2010**, 37, 311-21	4.4	56
58	Dosimetric impact of motion in free-breathing and gated lung radiotherapy: a 4D Monte Carlo study of intrafraction and interfraction effects. *Medical Physics*, **2008**, 35, 356-66	4.4	56
57	Comparison of out-of-field photon doses in 6 MV IMRT and neutron doses in proton therapy for adult and pediatric patients. *Physics in Medicine and Biology*, **2010**, 55, 2879-91	3.8	50

56	Monte Carlo calculations for absolute dosimetry to determine machine outputs for proton therapy fields. *Physics in Medicine and Biology*, **2006**, 51, 2801-12	3.8	49
55	Neutron dose in proton radiation therapy: in regard to Eric J. Hall (Int J Radiat Oncol Biol Phys 2006;65:1-7). *International Journal of Radiation Oncology Biology Physics*, **2006**, 66, 1594-5; author reply 1595	4	49
54	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
53	The impact of uncertainties in the CT conversion algorithm when predicting proton beam ranges in patients from dose and PET-activity distributions. *Physics in Medicine and Biology*, **2010**, 55, 7557-71	3.8	46
52	Reduction of the secondary neutron dose in passively scattered proton radiotherapy, using an optimized pre-collimator/collimator. *Physics in Medicine and Biology*, **2009**, 54, 6065-78	3.8	46
51	Monte Carlo study of the potential reduction in out-of-field dose using a patient-specific aperture in pencil beam scanning proton therapy. *Physics in Medicine and Biology*, **2012**, 57, 2829-42	3.8	42
50	Dependence of gold nanoparticle radiosensitization on cell geometry. *Nanoscale*, **2017**, 9, 5843-5853	7.7	41
49	Impact of Spot Size and Beam-Shaping Devices on the Treatment Plan Quality for Pencil Beam Scanning Proton Therapy. *International Journal of Radiation Oncology Biology Physics*, **2016**, 95, 190-198	4	41
48	Radiobiological significance of beamline dependent proton energy distributions in a spread-out Bragg peak. *Medical Physics*, **2000**, 27, 1119-26	4.4	40
47	Neutron equivalent doses and associated lifetime cancer incidence risks for head & neck and spinal proton therapy. *Physics in Medicine and Biology*, **2009**, 54, 4907-26	3.8	37
46	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
45	Variable Proton Relative Biological Effectiveness: How Do We Move Forward?. *International Journal of Radiation Oncology Biology Physics*, **2016**, 95, 56-58	4	34
44	Characterization of proton pencil beam scanning and passive beam using a high spatial resolution solid-state microdosimeter. *Medical Physics*, **2017**, 44, 6085-6095	4.4	33
43	Proton Relative Biological Effectiveness - Uncertainties and Opportunities. *International Journal of Particle Therapy*, **2018**, 5, 2-14	1.5	33
42	A deconvolution approach for PET-based dose reconstruction in proton radiotherapy. *Physics in Medicine and Biology*, **2011**, 56, 7601-19	3.8	30
41	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
40	Adjuvant radiation therapy for early stage seminoma: proton versus photon planning comparison and modeling of second cancer risk. *Radiotherapy and Oncology*, **2012**, 103, 12-7	5.3	25
39	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

38	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
37	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
36	Dosimetric accuracy of planning and delivering small proton therapy fields. *Physics in Medicine and Biology*, **2010**, 55, 7425-38	3.8	22
35	Geometrical splitting technique to improve the computational efficiency in Monte Carlo calculations for proton therapy. *Medical Physics*, **2013**, 40, 041718	4.4	21
34	Extension of the NCAT phantom for the investigation of intra-fraction respiratory motion in IMRT using 4D Monte Carlo. *Physics in Medicine and Biology*, **2010**, 55, 1475-90	3.8	20
33	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
32	Mapping (15)O production rate for proton therapy verification. *International Journal of Radiation Oncology Biology Physics*, **2015**, 92, 453-9	4	19
31	Validation of nuclear models in Geant4 using the dose distribution of a 177 MeV proton pencil beam. *Physics in Medicine and Biology*, **2016**, 61, N1-N10	3.8	18
30	Automated Monte Carlo Simulation of Proton Therapy Treatment Plans. *Technology in Cancer Research and Treatment*, **2016**, 15, NP35-NP46	2.7	18
29	The influence of patient positioning uncertainties in proton radiotherapy on proton range and dose distributions. *Medical Physics*, **2014**, 41, 091711	4.4	18
28	Sensitivity of different dose scoring methods on organ-specific neutron dose calculations in proton therapy. *Physics in Medicine and Biology*, **2008**, 53, 4523-32	3.8	18
27	Roadmap: proton therapy physics and biology. *Physics in Medicine and Biology*, **2020**,	3.8	17
26	Modelling variable proton relative biological effectiveness for treatment planning. *British Journal of Radiology*, **2020**, 93, 20190334	3.4	16
25	A dual-stream deep convolutional network for reducing metal streak artifacts in CT images. *Physics in Medicine and Biology*, **2019**, 64, 235003	3.8	15
24	Proton radiation in the management of localized cancer. *Expert Review of Medical Devices*, **2010**, 7, 275-85	3.5	15
23	Spread-out antiproton beams deliver poor physical dose distributions for radiation therapy. *Radiotherapy and Oncology*, **2010**, 95, 79-86	5.3	14
22	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
21	Feasibility of proton-activated implantable markers for proton range verification using PET. *Physics in Medicine and Biology*, **2013**, 58, 7497-512	3.8	13

20	Determination of elemental tissue composition following proton treatment using positron emission tomography. *Physics in Medicine and Biology*, **2013**, 58, 3815-35	3.8	12
19	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
18	Density overwrites of internal tumor volumes in intensity modulated proton therapy plans for mobile lung tumors. *Physics in Medicine and Biology*, **2018**, 63, 035023	3.8	11
17	Consistency in quality correction factors for ionization chamber dosimetry in scanned proton beam therapy. *Medical Physics*, **2017**, 44, 4919-4927	4.4	9
16	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
15	Comparison of whole-body phantom designs to estimate organ equivalent neutron doses for secondary cancer risk assessment in proton therapy. *Physics in Medicine and Biology*, **2012**, 57, 499-515	3.8	7
14	Adaptive proton therapy. *Physics in Medicine and Biology*, **2021**, 66,	3.8	7
13	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
12	Modeling RBE-weighted dose variations in irregularly moving abdominal targets treated with carbon ion beams. *Medical Physics*, **2020**, 47, 2768-2778	4.4	3
11	Metal artifact reduction for radiation therapy: a simulation study **2018**,		3
10	Proton Therapy. *Series in Medical Physics and Biomedical Engineering*, **2011**, 1-18		3
9	The Use of Computational Patient Models to Assess the Risk of Developing Radiation-Induced Cancers From Radiation Therapy of the Primary Cancer. *Proceedings of the IEEE*, **2009**, 97, 1977-1987	14.3	2
8	Late Effects from Scattered and Secondary Radiation. *Series in Medical Physics and Biomedical Engineering*, **2011**, 555-592		2
7	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
6	Monte Carlo methods for device simulations in radiation therapy. *Physics in Medicine and Biology*, **2021**, 66,	3.8	2
5	Monte Carlo Simulations. *Series in Medical Physics and Biomedical Engineering*, **2011**, 265-304		1
4	Physics of Particle Beam and Hypofractionated Beam Delivery in NSCLC. *Seminars in Radiation Oncology*, **2021**, 31, 162-169	5.5	0
3	Dose Calculations in Radiation Therapy Based on Patient Models Using the Geant4 Monte Carlo Code. *Series in Medical Physics and Biomedical Engineering*, **2009**, 607-632		

2 Physical and Biological Dose Distribution Due to Primary Protons and Secondary Particles from Nuclear Interactions **2000**, 323-325

1 Dose Calculation Algorithms. *Series in Medical Physics and Biomedical Engineering*, **2011**, 381-412