Dennis R Schaart

List of Publications by Citations

118 papers	5,060 citations	33 h-index	69 g-index
130 ext. papers	5,996 ext. citations	2.8 avg, IF	5.48 L-index

#	Paper	IF	Citations
118	GATE: a simulation toolkit for PET and SPECT. *Physics in Medicine and Biology*, **2004**, 49, 4543-61	3.8	1239
117	GATE V6: a major enhancement of the GATE simulation platform enabling modelling of CT and radiotherapy. *Physics in Medicine and Biology*, **2011**, 56, 881-901	3.8	488
116	A novel, SiPM-array-based, monolithic scintillator detector for PET. *Physics in Medicine and Biology*, **2009**, 54, 3501-12	3.8	233
115	A review of the use and potential of the GATE Monte Carlo simulation code for radiation therapy and dosimetry applications. *Medical Physics*, **2014**, 41, 064301	4.4	219
114	LaBr(3):Ce and SiPMs for time-of-flight PET: achieving 100 ps coincidence resolving time. *Physics in Medicine and Biology*, **2010**, 55, N179-89	3.8	179
113	The lower bound on the timing resolution of scintillation detectors. *Physics in Medicine and Biology*, **2012**, 57, 1797-814	3.8	119
112	Monolithic scintillator PET detectors with intrinsic depth-of-interaction correction. *Physics in Medicine and Biology*, **2009**, 54, 1893-908	3.8	107
111	Sub-200 ps CRT in monolithic scintillator PET detectors using digital SiPM arrays and maximum likelihood interaction time estimation. *Physics in Medicine and Biology*, **2013**, 58, 3243-57	3.8	95
110	A Comprehensive Model to Predict the Timing Resolution of SiPM-Based Scintillation Detectors: Theory and Experimental Validation. *IEEE Transactions on Nuclear Science*, **2012**, 59, 190-204	1.7	88
109	A Comprehensive Model of the Response of Silicon Photomultipliers. *IEEE Transactions on Nuclear Science*, **2010**, 57, 2254-2266	1.7	83
108	First characterization of a digital SiPM based time-of-flight PET detector with 1 mm spatial resolution. *Physics in Medicine and Biology*, **2013**, 58, 3061-74	3.8	78
107	Simulation of Silicon Photomultiplier Signals. *IEEE Transactions on Nuclear Science*, **2009**, 56, 3726-3733	1.7	77
106	BGO as a hybrid scintillator / Cherenkov radiator for cost-effective time-of-flight PET. *Physics in Medicine and Biology*, **2017**, 62, 4421-4439	3.8	75
105	Optical simulation of monolithic scintillator detectors using GATE/GEANT4. *Physics in Medicine and Biology*, **2010**, 55, 1659-75	3.8	75
104	A practical method for depth of interaction determination in monolithic scintillator PET detectors. *Physics in Medicine and Biology*, **2011**, 56, 4135-45	3.8	69
103	Advances in digital SiPMs and their application in biomedical imaging. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2016**, 809, 31-52	1.2	66
102	Improved Nearest Neighbor Methods for Gamma Photon Interaction Position Determination in Monolithic Scintillator PET Detectors. *IEEE Transactions on Nuclear Science*, **2011**, 58, 2139-2147	1.7	65

101	A comparison of MCNP4C electron transport with ITS 3.0 and experiment at incident energies between 100 keV and 20 MeV: influence of voxel size, substeps and energy indexing algorithm. *Physics in Medicine and Biology*, **2002**, 47, 1459-84	3.8	64
100	Experimental characterization of monolithic-crystal small animal PET detectors read out by APD arrays. *IEEE Transactions on Nuclear Science*, **2006**, 53, 1071-1077	1.7	63
99	Time-of-flight neutron rejection to improve prompt gamma imaging for proton range verification: a simulation study. *Physics in Medicine and Biology*, **2012**, 57, 6429-44	3.8	61
98	Comparison of GATE/GEANT4 with EGSnrc and MCNP for electron dose calculations at energies between 15 keV and 20 MeV. *Physics in Medicine and Biology*, **2011**, 56, 811-27	3.8	52
97	Monte Carlo calculations of positron emitter yields in proton radiotherapy. *Physics in Medicine and Biology*, **2012**, 57, 1659-73	3.8	51
96	Towards a continuous crystal APD-based PET detector design. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2007**, 571, 182-186	1.2	49
95	A 32 mm □32 mm □22 mm monolithic LYSO:Ce detector with dual-sided digital photon counter readout for ultrahigh-performance TOF-PET and TOF-PET/MRI. *Physics in Medicine and Biology*, **2016**, 61, 4929-49	3.8	44
94	Monolithic LaBr□Ce crystals on silicon photomultiplier arrays for time-of-flight positron emission tomography. *Physics in Medicine and Biology*, **2012**, 57, 2219-33	3.8	44
93	Accurate measurement of the rise and decay times of fast scintillators with solid state photon counters. *Journal of Instrumentation*, **2012**, 7, P09004-P09004	1	43
92	Extracting storm-surge data from coastal dunes for improved assessment of flood risk. *Geology*, **2011**, 39, 1063-1066	5	43
91	Dose calculation formalisms and consensus dosimetry parameters for intravascular brachytherapy dosimetry: recommendations of the AAPM Therapy Physics Committee Task Group No. 149. *Medical Physics*, **2007**, 34, 4126-57	4.4	43
90	Towards monolithic scintillator based TOF-PET systems: practical methods for detector calibration and operation. *Physics in Medicine and Biology*, **2016**, 61, 4904-28	3.8	42
89	Evaluation of Machine Learning Algorithms for Localization of Photons in Undivided Scintillator Blocks for PET Detectors. *IEEE Transactions on Nuclear Science*, **2008**, 55, 918-924	1.7	39
88	Ultra precise timing with SiPM-based TOF PET scintillation detectors **2009**,		35
87	. *IEEE Transactions on Nuclear Science*, **2015**, 62, 3-11	1.7	34
86	Probabilities of triggering and validation in a digital silicon photomultiplier. *Journal of Instrumentation*, **2014**, 9, P06016-P06016	1	33
85	Experimental and computational simulation of beta-dose heterogeneity in sediment. *Radiation Measurements*, **2012**, 47, 1060-1067	1.5	32
84	The price of robustness; impact of worst-case optimization on organ-at-risk dose and complication probability in intensity-modulated proton therapy for oropharyngeal cancer patients. *Radiotherapy and Oncology*, **2016**, 120, 56-62	5.3	32

83	Efficient Single-Photon Detection with 7.7 ps Time Resolution for Photon-Correlation Measurements. *ACS Photonics*, **2020**, 7, 1780-1787	6.3	30
82	Factors influencing the accuracy of beam range estimation in proton therapy using prompt gamma emission. *Physics in Medicine and Biology*, **2014**, 59, 4427-41	3.8	30
81	Using Cramer-Rao theory combined with Monte Carlo simulations for the optimization of monolithic scintillator PET detectors. *IEEE Transactions on Nuclear Science*, **2006**, 53, 1063-1070	1.7	30
80	Development of a Compton camera for prompt-gamma medical imaging. *Radiation Physics and Chemistry*, **2017**, 140, 190-197	2.5	29
79	Sub-3 mm, near-200 ps TOF/DOI-PET imaging with monolithic scintillator detectors in a 70 cm diameter tomographic setup. *Physics in Medicine and Biology*, **2018**, 63, 155006	3.8	29
78	First in situ TOF-PET study using digital photon counters for proton range verification. *Physics in Medicine and Biology*, **2016**, 61, 6203-30	3.8	27
77	Experimental Validation of an Efficient Fan-Beam Calibration Procedure for k-Nearest Neighbor Position Estimation in Monolithic Scintillator Detectors. *IEEE Transactions on Nuclear Science*, **2015**, 62, 57-67	1.7	25
76	Variable circular collimator in robotic radiosurgery: a time-efficient alternative to a mini-multileaf collimator?. *International Journal of Radiation Oncology Biology Physics*, **2011**, 81, 863-70	4	25
75	The statistical distribution of the number of counted scintillation photons in digital silicon photomultipliers: model and validation. *Physics in Medicine and Biology*, **2012**, 57, 4885-903	3.8	24
74	Time-resolved imaging of prompt-gamma rays for proton range verification using a knife-edge slit camera based on digital photon counters. *Physics in Medicine and Biology*, **2015**, 60, 6063-85	3.8	22
73	11.4 A 67,392-SPAD PVTB-compensated multi-channel digital SiPM with 432 column-parallel 48ps 17b TDCs for endoscopic time-of-flight PET **2015**,		21
72	Properties and mechanisms of scintillation in CsGd2F7:Ce3+and CsY2F7:Ce3+crystals. *Journal of Physics Condensed Matter*, **1995**, 7, 3063-3088	1.8	21
71	Time estimation with multichannel digital silicon photomultipliers. *Physics in Medicine and Biology*, **2015**, 60, 2435-52	3.8	20
70	Intrinsic scintillation pulse shape measurements by means of picosecond x-ray excitation for fast timing applications. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2014**, 767, 206-211	1.2	20
69	Optical Absorption Length, Scattering Length, and Refractive Index of ${rm LaBr}_{3}!!:!!{rm Ce}^{3+}$. *IEEE Transactions on Nuclear Science*, **2012**, 59, 656-664	1.7	20
68	Polymersomes as nano-carriers to retain harmful recoil nuclides in alpha radionuclide therapy: a feasibility study. *Radiochimica Acta*, **2012**, 100, 473-482	1.9	20
67	Accurate calibration of a laboratory beta particle dose rate for dating purposes. *Radiation Measurements*, **2006**, 41, 1020-1025	1.5	20
66	On the applicability of the AAPM TG-60/TG-43 dose calculation formalism to intravascular line sources: proposal for an adapted formalism. *Medical Physics*, **2001**, 28, 638-53	4.4	20

65	Adaptive liver stereotactic body radiation therapy: automated daily plan reoptimization prevents dose delivery degradation caused by anatomy deformations. *International Journal of Radiation Oncology Biology Physics*, **2013**, 87, 1016-21	4	17
64	Signal to Noise Ratio of APD-Based Monolithic Scintillator Detectors for High Resolution PET. *IEEE Transactions on Nuclear Science*, **2008**, 55, 842-852	1.7	16
63	A Compton camera prototype for prompt gamma medical imaging. *EPJ Web of Conferences*, **2016**, 117, 05005	0.3	16
62	A comprehensive characterization of the time resolution of the Philips Digital Photon Counter. *Journal of Instrumentation*, **2016**, 11, P11004-P11004	1	15
61	First performance tests of a digital photon counter (DPC) array coupled to a CsI(Tl) crystal matrix for potential use in SPECT. *Physics in Medicine and Biology*, **2014**, 59, 2415-30	3.8	14
60	Physics and technology of time-of-flight PET detectors. *Physics in Medicine and Biology*, **2021**, 66,	3.8	14
59	Toward a Full-Flexible and Fast-Prototyping TOF-PET Block Detector Based on TDC-on-FPGA. *IEEE Transactions on Radiation and Plasma Medical Sciences*, **2019**, 3, 538-548	4.2	13
58	Comparative Study of Co-Doped and Non Co-Doped LSO:Ce and LYSO:Ce Scintillators for TOF-PET. *IEEE Transactions on Nuclear Science*, **2015**, 62, 727-731	1.7	13
57	The Effect of Self-Absorption on the Scintillation Properties of ${rm Ce}^{3+}$ Activated ${rm LaBr}_{3}$ and ${rm CeBr}_{3}$. *IEEE Transactions on Nuclear Science*, **2014**, 61, 683-688	1.7	13
56	Optimization of digital time pickoff methods for LaBr3-SiPM TOF-PET detectors **2009**,		13
55	Investigation of an in situ position calibration method for continuous crystal-based PET detectors. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2007**, 571, 304-307	1.2	13
54	Optimization of an ultralow-dose high-resolution pediatric PET scanner design based on monolithic scintillators with dual-sided digital SiPM readout: a simulation study. *Physics in Medicine and Biology* , **2017**, 62, 8402-8418	3.8	12
53	Achieving 10 ps coincidence time resolution in TOF-PET is an impossible dream. *Medical Physics*, **2020**, 47, 2721-2724	4.4	12
52	Fast automated multi-criteria planning for HDR brachytherapy explored for prostate cancer. *Physics in Medicine and Biology*, **2019**, 64, 205002	3.8	11
51	Model of the point spread function of monolithic scintillator PET detectors for perpendicular incidence. *Medical Physics*, **2010**, 37, 1904-13	4.4	11
50	SiPM-array based PET detectors with depth-of-interaction correction **2008**,		11
49	Initial Characterization of a Nonpixelated Scintillator Detector in a PET Prototype Demonstrator. *IEEE Transactions on Nuclear Science*, **2006**, 53, 2543-2548	1.7	11
48	Variation in interpretation of the AAPM TG-43 geometry factor leads to unclearness in brachytherapy dosimetry. *Medical Physics*, **2001**, 28, 1965-6	4.4	11

47	The radial depth-dose distribution of a 188W/188Re beta line source measured with novel, ultra-thin TLDs in a PMMA phantom: comparison with Monte Carlo simulations. *Physics in Medicine and Biology*, **2002**, 47, 3605-27	3.8	11
46	Time-based position estimation in monolithic scintillator detectors. *Physics in Medicine and Biology*, **2015**, 60, 5513-25	3.8	10
45	Development of a Compton Camera for Online Range Monitoring of Laser-Accelerated Proton Beams via Prompt-Gamma Detection. *EPJ Web of Conferences*, **2014**, 66, 11036	0.3	10
44	A high bandwidth preamplifier for SiPM-based TOF PET scintillation detectors **2008**,		10
43	Optimization of the Signal-to-Background Ratio in Prompt Gamma Imaging Using Energy and Shifting Time-of-Flight Discrimination: Experiments With a Scanning Parallel-Slit Collimator. *IEEE Transactions on Radiation and Plasma Medical Sciences*, **2018**, 2, 510-519	4.2	9
42	Picosecond Time Resolved Studies of Photon Transport Inside Scintillators. *IEEE Transactions on Nuclear Science*, **2015**, 62, 1961-1971	1.7	9
41	An enhanced high-resolution EMCCD-based gamma camera using SiPM side detection. *Physics in Medicine and Biology*, **2010**, 55, 6773-84	3.8	9
40	Performance of APD-based monolithic-crystal detectors for small animal PET		9
39	Limits on the spatial resolution of monolithic scintillators read out by APD arrays. *Physics in Medicine and Biology*, **2012**, 57, 6479-96	3.8	8
38	Optimization of collimator designs for real-time proton range verification by measuring prompt gamma rays **2012**,		8
37	The scaling method applied to beta particle line sources with a finite diameter. *Medical Physics*, **2002**, 29, 2682-6	4.4	8
36	Potential applications of electron emission membranes in medicine. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2016**, 809, 171-174	1.2	8
35	Improved image quality using monolithic scintillator detectors with dual-sided readout in a whole-body TOF-PET ring: a simulation study. *Physics in Medicine and Biology*, **2017**, 62, 2018-2032	3.8	7
34	Comparative Characterization Study of a LaBr3(Ce) Scintillation Crystal in Two Surface Wrapping Scenarios: Absorptive and Reflective. *Frontiers in Oncology*, **2015**, 5, 270	5.3	7
33	. *IEEE Transactions on Nuclear Science*, **2015**, 62, 1972-1980	1.7	7
32	A comparison of intravascular source designs based on the beta particle emitter 114mIn/114In. Line source versus stepping source. *Cardiovascular Radiation Medicine*, **2002**, 3, 31-43		7
31	Accurate measurements of the rise and decay times of fast scintillators with solid state photon counters **2010**,		6
30	Impact of instrumentation parameters on the performance of neural network based positioning algorithms for monolithic scintillator blocks **2007**,		6

29	A High Count-Rate and Depth-of-Interaction Resolving Single-Layered One-Side Readout Pixelated Scintillator Crystal Array for PET Applications. *IEEE Transactions on Radiation and Plasma Medical Sciences*, **2020**, 4, 361-370	4.2	6
28	Simulation of proton range monitoring in an anthropomorphic phantom using multi-slat collimators and time-of-flight detection of prompt-gamma quanta. *Physica Medica*, **2018**, 54, 1-14	2.7	6
27	Correlations between the shifts in prompt gamma emission profiles and the changes in daily target coverage during simulated pencil beam scanning proton therapy. *Physics in Medicine and Biology*, **2019**, 64, 085009	3.8	5
26	Sub-3mm spatial resolution from a large monolithic LaBr3 (Ce) scintillator. *Current Directions in Biomedical Engineering*, **2017**, 3, 655-659	0.5	5
25	An order-statistics-inspired, fully-digital readout approach for analog SiPM arrays **2016**,		5
24	Comparison of Nonlinear Position Estimators For Continuous Scintillator Detectors In PET **2006**,		5
23	Experimental characterization of novel small animal PET detector modules based on scintillation crystal blocks read out by APD arrays		5
22	Recommendations on detectors and quality control procedures for brachytherapy beta sources. *Radiotherapy and Oncology*, **2006**, 78, 223-9	5.3	4
21	Modelling of a 188W/188Re beta line source for coronary brachytherapy by means of EGS4 Monte Carlo simulations. *Physics in Medicine and Biology*, **2000**, 45, 1319-34	3.8	4
20	Time of Flight in Perspective: Instrumental and Computational Aspects of Time Resolution in Positron Emission Tomography. *IEEE Transactions on Radiation and Plasma Medical Sciences*, **2021**, 5, 598-618	4.2	4
19	Reconstructing 3D proton dose distribution using ionoacoustics. *Physics in Medicine and Biology*, **2019**, 64, 225005	3.8	3
18	Improved EMCCD gamma camera performance by SiPM pre-localization. *Physics in Medicine and Biology*, **2012**, 57, 7709-24	3.8	3
17	Thick monolithic scintillation crystals for TOF-PET with depth-of-interaction measurement **2010**,		3
16	Signal to Noise Ratio of Monolithic Scintillator Detectors for High Resolution PET **2006**,		3
15	Introduction to Silicon Photomultipliers for Time-of-Flight PET **2020**, 27-40		3
14	The Tipsy single soft photon detector and the Trixy ultrafast tracking detector. *Journal of Instrumentation*, **2013**, 8, C01036-C01036	1	2
13	First measurement of scintillation photon arrival statistics using a high-granularity solid-state photosensor enabling time-stamping of up to 20,480 single photons **2011**,		2
12	Silicon Photomultiplier response model **2009**,		2

11	The Tipsy single soft photon detector and the Trixy ultrafast tracking detector **2012**,		2
10	Optimizing timing resolution for TOF PET detectors based on monolithic scintillation crystals using fast photosensor arrays **2008**,		2
9	Scintillation mechanism in CsGd2F7:Ce3+ and CsY2F7:Ce3+ crystals. *Radiation Effects and Defects in Solids*, **1995**, 135, 329-331	0.9	2
8	An Approach for Optimizing Prompt Gamma Photon-Based Range Estimation in Proton Therapy Using Cramér-Rao Theory. *IEEE Transactions on Radiation and Plasma Medical Sciences*, **2020**, 4, 161-169	4.2	2
7	An improved nearest neighbor method for the estimation of the gamma photon entry point in monolithic scintillator detectors for PET **2010**,		1
6	Range and density variations monitoring during proton therapy based on time-of-flight detection of prompt gamma radiation **2011**,		1
5	Monolithic scintillator blocks in PET and SPECT **2008**,		1
4	Spatial Resolution in Position-Sensitive Monolithic Scintillation Detectors **2006**,		1
3	Silicon photomultiplier-based scintillation detectors for photon-counting CT: A feasibility study. *Medical Physics*, **2021**, 48, 6324-6338	4.4	1
2	Scintillation properties of Ca co-doped L(Y)SO:Ce between 193 K and 373 K for TOF-PET/MRI. *EJNMMI Physics*, **2014**, 1, A10	4.4	0
1	Geometric optimization of an ultralow-dose high-resolution pediatric PET scanner based on monolithic scintillators with dSiPM readout. *EJNMMI Physics*, **2015**, 2, A23	4.4	