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Accurate condensed history Monte Carlo simulation of electron transport. I. EGSnrc, the new EGS4 version

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Medical Physics, 2000, 27, 485-98.

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#	Paper	IF	Citations
778	Cross section improvements for EGSnrc.		2
777	VMC/sup ++/, a MC algorithm optimized for electron and photon beam dose calculations for RTP.		5
776	Revised relationship between $R_{50}$ and $E_0$ for electron beams.		
775	Monte Carlo study of correction factors for Spencer-Attix cavity theory at photon energies at or above 100 keV. <i>Medical Physics</i> , <b>2000</b> , 27, 1804-13	4.4	50
774	Investigation of variance reduction techniques for Monte Carlo photon dose calculation using XVMC. <i>Physics in Medicine and Biology</i> , <b>2000</b> , 45, 2163-83	3.8	203
773	Calculation of beta-ray dose distributions from ophthalmic applicators and comparison with measurements in a model eye. <i>Medical Physics</i> , <b>2001</b> , 28, 1385-96	4.4	40
772	Radionuclide therapy with bone-seeking compounds: Monte Carlo calculations of dose-volume histograms for bone marrow in trabecular bone. <i>Physics in Medicine and Biology</i> , <b>2001</b> , 46, 1149-61	3.8	27
771	Electron fluence correction factors for various materials in clinical electron beams. <i>Medical Physics</i> , <b>2001</b> , 28, 1727-34	4.4	5
770	[Foundations of the Monte Carlo method for dose calculation in radiotherapy]. <i>Zeitschrift Fur Medizinische Physik</i> , <b>2001</b> , 11, 73-82	7.6	2
769	[Verification of a fast Monte Carlo dose calculation algorithm by EGSnrc using the statistical separation method]. <i>Zeitschrift Fur Medizinische Physik</i> , <b>2001</b> , 11, 152-60	7.6	2
768	Quantifying effects of lead shielding in electron beams: a Monte Carlo study. <i>Physics in Medicine and Biology</i> , <b>2001</b> , 46, 757-69	3.8	12
767	A systematic Monte Carlo study of secondary electron fluence perturbation in clinical proton beams (70-250 MeV) for cylindrical and spherical ion chambers. <i>Medical Physics</i> , <b>2001</b> , 28, 2088-95	4.4	22
766	Dosimetric effects of contrast media for catheter-based intravascular brachytherapy. <i>Medical Physics</i> , <b>2001</b> , 28, 757-63	4.4	15
765	Dose distributions for <sup>90</sup> Y intravascular brachytherapy sources used with balloon catheters. <i>Medical Physics</i> , <b>2002</b> , 29, 1562-71	4.4	5
764	History by history statistical estimators in the BEAM code system. <i>Medical Physics</i> , <b>2002</b> , 29, 2745-52	4.4	122
763	Comparison between a germanium orthogonal strip detector and an Anger camera through a simulation and modeling study. <b>2002</b> , 49, 2196-2202		
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761	Measurement of absorbed dose with a bone-equivalent extrapolation chamber. <i>Medical Physics</i> , <b>2002</b> , 29, 433-40	4.4	5
760	A MODULAR DESCRIPTION OF THE GEOMETRY IN MONTE CARLO MODELING STUDIES FOR NUCLEAR MEDICINE. <b>2002</b> , 13, 465-476		5
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757	Creation of two tomographic voxel models of paediatric patients in the first year of life. <i>Physics in Medicine and Biology</i> , <b>2002</b> , 47, 3143-64	3.8	54
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729	Comparison of measured and Monte Carlo calculated dose distributions in inhomogeneous phantoms in clinical electron beams. <i>Physics in Medicine and Biology</i> , <b>2003</b> , 48, 2339-54	3.8	27
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466	The energy dependence of lithium formate and alanine EPR dosimeters for medium energy x rays. <i>Medical Physics</i> , <b>2010</b> , 37, 3569-75	4.4	36
465	Water equivalency evaluation of PRESAGE <sup>®</sup> dosimeters for dosimetry of Cs-137 and Ir-192 brachytherapy sources. <b>2010</b> , 250, 012093		8
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453	Radiological characterization and water equivalency of genipin gel for x-ray and electron beam dosimetry. <i>Physics in Medicine and Biology</i> , <b>2011</b> , 56, 4685-99	3.8	28
452	The importance of tissue segmentation for dose calculations for kilovoltage radiation therapy. <i>Medical Physics</i> , <b>2011</b> , 38, 3039-49	4.4	37
451	Investigation of radiological properties and water equivalency of PRESAGE dosimeters. <i>Medical Physics</i> , <b>2011</b> , 38, 2265-74	4.4	77
450	Comparison of GATE/GEANT4 with EGSnrc and MCNP for electron dose calculations at energies between 15 keV and 20 MeV. <i>Physics in Medicine and Biology</i> , <b>2011</b> , 56, 811-27	3.8	52
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433	GPU-based fast Monte Carlo simulation for radiotherapy dose calculation. <i>Physics in Medicine and Biology</i> , <b>2011</b> , 56, 7017-31	3.8	97
432	Validation of GPUMCD for low-energy brachytherapy seed dosimetry. <i>Medical Physics</i> , <b>2011</b> , 38, 4101-7	4.4	12
431	Measured and Monte Carlo calculated $K(Q)$ factors: accuracy and comparison. <i>Medical Physics</i> , <b>2011</b> , 38, 4600-9	4.4	44
430	The difference of scoring dose to water or tissues in Monte Carlo dose calculations for low energy brachytherapy photon sources. <i>Medical Physics</i> , <b>2011</b> , 38, 1526-33	4.4	31
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428	A Monte Carlo method to evaluate the impact of positioning errors on detector response and quality correction factors in nonstandard beams. <i>Physics in Medicine and Biology</i> , <b>2011</b> , 56, 2617-34	3.8	19
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4 <sup>11</sup>	On determining dose rate constants spectroscopically. <i>Medical Physics</i> , <b>2013</b> , 40, 011713	4.4	6
4 <sup>10</sup>	Imaging properties of small-pixel spectroscopic x-ray detectors based on cadmium telluride sensors. <i>Physics in Medicine and Biology</i> , <b>2012</b> , 57, 6743-59	3.8	68
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4 <sup>08</sup>	Influence of photon energy cuts on PET Monte Carlo simulation results. <i>Medical Physics</i> , <b>2012</b> , 39, 4175-86	4.4	1
4 <sup>07</sup>	Beam generation and planar imaging at energies below 2.40 MeV with carbon and aluminum linear accelerator targets. <i>Medical Physics</i> , <b>2012</b> , 39, 4568-78	4.4	15
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4 <sup>05</sup>	Detailed high-accuracy megavoltage transmission measurements: a sensitive experimental benchmark of EGSnrc. <i>Medical Physics</i> , <b>2012</b> , 39, 5990-6003	4.4	5
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311	Application of GATE/Geant4 for internal dosimetry using male ICRP reference voxel phantom by specific absorbed fractions calculations for photon irradiation. <b>2015</b> , 1, 045201		6
310	High spatial resolution dosimetric response maps for radiotherapy ionization chambers measured using kilovoltage synchrotron radiation. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 8625-41	3.8	23
309	Uncertainties in Monte Carlo-based absorbed dose calculations for an experimental benchmark. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 7637-53	3.8	7
308	Absorbed dose-to-water measurement of an HDR 192 Ir source with Farmer ionization chambers in a sandwich setup. <b>2015</b> , 1, 037002		4
307	Monte Carlo-calculated patient organ doses from kV-cone beam CT in image-guided radiation therapy. <b>2015</b> , 1, 025203		2
306	GGEMS-Brachy: GPU GEant4-based Monte Carlo simulation for brachytherapy applications. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 4987-5006	3.8	12
305	Comparison between EGSnrc, Geant4, MCNP5 and Penelope for mono-energetic electron beams. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 4951-62	3.8	22
304	The inverse-square gamma-irradiation anomaly of the Nuclear Enterprises 2575 large-volume ionisation chamber. <b>2015</b> , 167, 385-91		2
303	A GPU OpenCL based cross-platform Monte Carlo dose calculation engine (goMC). <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 7419-35	3.8	17
302	Direct calibration in megavoltage photon beams using Monte Carlo conversion factor: validation and clinical implications. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 883-904	3.8	9
301	Latent uncertainties of the precalculated track Monte Carlo method. <i>Medical Physics</i> , <b>2015</b> , 42, 479-90	4.4	7
300	Validation of a GPU-based Monte Carlo code (gPMC) for proton radiation therapy: clinical cases study. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 2257-69	3.8	38
299	Response of the alanine/ESR dosimeter to radiation from an Ir-192 HDR brachytherapy source. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 175-93	3.8	5
298	Towards a quantitative, measurement-based estimate of the uncertainty in photon mass attenuation coefficients at radiation therapy energies. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 1641-54	3.8	6
297	A Monte Carlo investigation of cumulative dose measurements for cone beam computed tomography (CBCT) dosimetry. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 1519-42	3.8	19
296	Measurements of the relative backscatter contribution to the monitor chamber for modern medical linear accelerators; a multi-center study. <i>Radiation Measurements</i> , <b>2015</b> , 72, 75-80	1.5	1
295	Advances in Computational Radiation Biophysics for Cancer Therapy: Simulating Nano-Scale Damage by Low-Energy Electrons. <b>2015</b> , 10, 25-36		6
294	Calculation of cellular S-values using Geant4-DNA: The effect of cell geometry. <b>2015</b> , 104, 113-23		33

293	Coupling of Geant4-DNA physics models into the GATE Monte Carlo platform: Evaluation of radiation-induced damage for clinical and preclinical radiation therapy beams. <b>2015</b> , 353, 46-55		7
292	Validation of the Geant4 simulation of bremsstrahlung from thick targets below 3 MeV. <b>2015</b> , 350, 41-48		23
291	Experimental measurements and Monte Carlo modelling of the XSTRAHL 150 superficial X-ray therapy unit. <i>Journal of Radiotherapy in Practice</i> , <b>2015</b> , 14, 43-55	0.4	0
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289	Lorentz force correction to the Boltzmann radiation transport equation and its implications for Monte Carlo algorithms. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 4963-71	3.8	16
288	Investigation of practical approaches to evaluating cumulative dose for cone beam computed tomography (CBCT) from standard CT dosimetry measurements: a Monte Carlo study. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 5413-38	3.8	3
287	Feasibility of spectral CT imaging for the detection of liver lesions with gold-based contrast agents - A simulation study. <i>Physica Medica</i> , <b>2015</b> , 31, 875-881	2.7	17
286	An investigation of kV CBCT image quality and dose reduction for volume-of-interest imaging using dynamic collimation. <i>Medical Physics</i> , <b>2015</b> , 42, 5258-69	4.4	14
285	Monte Carlo reference data sets for imaging research: Executive summary of the report of AAPM Research Committee Task Group 195. <i>Medical Physics</i> , <b>2015</b> , 42, 5679-91	4.4	58
284	Detector dose response in megavoltage small photon beams. II. Pencil beam perturbation effects. <i>Medical Physics</i> , <b>2015</b> , 42, 6048-61	4.4	43
283	Improved efficiency in Monte Carlo simulation for passive-scattering proton therapy. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 5019-35	3.8	6
282	Electron dose distributions caused by the contact-type metallic eye shield: Studies using Monte Carlo and pencil beam algorithms. <b>2015</b> , 40, 240-3		1
281	Monte Carlo calculations support organ sparing in Deep-Inspiration Breath-Hold intensity-modulated radiotherapy for locally advanced lung cancer. <b>2015</b> , 117, 55-63		6
280	Measurement of spatial response functions of dosimetric detectors. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 6177-94	3.8	12
279	Reference dosimetry in the presence of magnetic fields: conditions to validate Monte Carlo simulations. <i>Physics in Medicine and Biology</i> , <b>2015</b> , 60, 6639-54	3.8	15
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277	Design and evaluation of a Monte Carlo based model of an orthovoltage treatment system. <i>Zeitschrift Fur Medizinische Physik</i> , <b>2015</b> , 25, 341-352	7.6	2
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273	Theoretical versus Ex Vivo Assessment of Radiation Damage Repair: An Investigation in Normal Breast Tissue. <i>Radiation Research</i> , <b>2016</b> , 185, 393-401	3.1	1
272	Validation of total skin electron irradiation (TSEI) technique dosimetry data by Monte Carlo simulation. <b>2016</b> , 17, 418-429		3
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270	Monte Carlo calculated correction factors for the PTW microDiamond detector in the Gamma Knife-Model C. <i>Medical Physics</i> , <b>2016</b> , 43, 1035-44	4.4	11
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268	Reference dosimetry in magnetic fields: formalism and ionization chamber correction factors. <i>Medical Physics</i> , <b>2016</b> , 43, 4915	4.4	100
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262	Experimental HPGc coaxial detector response and efficiency compared to Monte Carlo simulations. <b>2016</b> , 108, 64-74		13
261	Development of Monte Carlo simulations to provide scanner-specific organ dose coefficients for contemporary CT. <i>Physics in Medicine and Biology</i> , <b>2016</b> , 61, 5356-77	3.8	6
260	Effectiveness of abdominal shields in chest radiography: a Monte Carlo evaluation. <b>2016</b> , 89, 20160465		3
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258	Improved tissue assignment using dual-energy computed tomography in low-dose rate prostate brachytherapy for Monte Carlo dose calculation. <i>Medical Physics</i> , <b>2016</b> , 43, 2611	4.4	4

257	Pre-clinical quantitative imaging and mouse-specific dosimetry for In-labelled radiotracers. <b>2016</b> , 6, 85		2
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255	Using a dose-area product for absolute measurements in small fields: a feasibility study. <i>Physics in Medicine and Biology</i> , <b>2016</b> , 61, 650-62	3.8	17
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251	Evaluation of a deterministic grid-based Boltzmann solver (GBBS) for voxel-level absorbed dose calculations in nuclear medicine. <i>Physics in Medicine and Biology</i> , <b>2016</b> , 61, 4564-82	3.8	5
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244	Perturbation correction for alanine dosimeters in different phantom materials in high-energy photon beams. <i>Physics in Medicine and Biology</i> , <b>2016</b> , 61, N70-9	3.8	2
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240	Perturbation effects of the carbon fiber-PEEK screws on radiotherapy dose distribution. <b>2017</b> , 18, 62-68		46

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231	Heterogeneous multiscale Monte Carlo simulations for gold nanoparticle radiosensitization. <i>Medical Physics</i> , <b>2017</b> , 44, 644-653	4.4	31
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229	Characteristics of 2.5 MV beam and imaging dose to patients. <b>2017</b> , 125, 541-547		4
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226	Monte Carlo and experimental determination of correction factors for gamma knife perfexion small field dosimetry measurements. <i>Physics in Medicine and Biology</i> , <b>2017</b> , 62, 7532-7555	3.8	13
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211	The influence of tissue composition uncertainty on dose distributions in brachytherapy. <b>2018</b> , 126, 394-410		12
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207	Bone lesion absorbed dose profiles in patients with metastatic prostate cancer treated with molecular radiotherapy. <b>2018</b> , 91, 20170795		7
206	Measured and Monte Carlo simulated surface dose reduction for superficial X-rays incident on tissue with underlying air or bone. <i>Medical Physics</i> , <b>2018</b> , 45, 926-933	4.4	3
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192	Microdosimetric considerations for radiation response studies using Raman spectroscopy. <i>Medical Physics</i> , <b>2018</b> , 45, 4734-4743	4.4	4
191	A 5D, polarised, Bethe-Heitler event generator for $\pi$ $\pi$ +e $\pi$ conversion. <b>2018</b> , 899, 85-93		8
190	Monte Carlo dose verification of VMAT treatment plans using Elekta Agility 160-leaf MLC. <i>Physica Medica</i> , <b>2018</b> , 51, 22-31	2.7	10
189	Investigating energy deposition within cell populations using Monte Carlo simulations. <i>Physics in Medicine and Biology</i> , <b>2018</b> , 63, 155018	3.8	6
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186	Physical Enhancement of the Effectiveness of X-Ray Irradiation. <b>2018</b> , 23-116		2

185	Monte Carlo Dosimetry of Organ Doses from a Sweeping-Beam Total Body Irradiation Technique: Feasibility and First Results. <b>2019</b> , 421-427		
184	A benchmark for Monte Carlo simulation in gamma-ray spectrometry. <b>2019</b> , 154, 108850		4
183	Effect of ICRU report 90 recommendations on Monte Carlo calculated k for ionization chambers listed in the Addendum to AAPM TG-51 protocol. <i>Medical Physics</i> , <b>2019</b> , 46, 5185-5194	4.4	0
182	Precise branching ratio measurement for the superallowed $\beta^+$ decay of Si26: Completion of a second mirror pair. <b>2019</b> , 100,		2
181	Enabling Large Scale Data Production for OpenDose with GATE on the EGI Infrastructure. <b>2019</b> ,		2
180	Optimization of Phase Space Files from clinical linear accelerators. <i>Physica Medica</i> , <b>2019</b> , 64, 54-68	2.7	4
179	Comparison of penh, fluka, and Geant4/topas for absorbed dose calculations in air cavities representing ionization chambers in high-energy photon and proton beams. <i>Medical Physics</i> , <b>2019</b> , 46, 4639-4653	4.4	14
178	On calculating kerma, collision kerma and radiative yields. <i>Medical Physics</i> , <b>2019</b> , 46, 5173-5184	4.4	3
177	Electron modulated arc therapy (EMAT) using photon MLC for postmastectomy chest wall treatment I: Monte Carlo-based dosimetric characterizations. <i>Physica Medica</i> , <b>2019</b> , 67, 1-8	2.7	3
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175	Estimation of effective imaging dose and excess absolute risk of secondary cancer incidence for four-dimensional cone-beam computed tomography acquisition. <b>2019</b> , 20, 57-68		4
174	Radiation damage studies in cardiac muscle cells and tissue using microfocused X-ray beams: experiment and simulation. <b>2019</b> , 26, 980-990		6
173	Characterization of CsI(Tl) and LYSO(Ce) scintillator detectors by measurements and Monte Carlo simulations. <b>2019</b> , 154, 108878		6
172	Determination of W in high-energy electron beams using graphite detectors. <i>Medical Physics</i> , <b>2019</b> , 46, 5195-5208	4.4	4
171	Assessment of self- and cross-absorbed SAF values for HDRK-man using Geant4 code: internal photon and electron emitters. <b>2019</b> , 30, 1		1
170	Investigating the effect of dental implant materials with different densities on radiotherapy dose distribution using Monte-Carlo simulation and pencil beam convolution algorithm. <b>2019</b> , 48, 20180267		4
169	Technical Note: Sensitive volume effects on ion chamber responses in longitudinal magnetic fields. <i>Medical Physics</i> , <b>2019</b> , 46, 3306-3310	4.4	
168	Assessment of FLUKA, PENELOPE and MCNP6 Monte Carlo codes for estimating gold fluorescence applied to the detection of gold-infused tumoral volumes. <b>2019</b> , 151, 280-288		3

167	Technical Note: Monte Carlo study on the reduction in x-ray contamination of therapeutic electron beams for Intraoperative Radiation Therapy by means of improvements in the design of scattering foils. <i>Medical Physics</i> , <b>2019</b> , 46, 3378-3384	4.4	2
166	Determination of initial electron parameters by means of Monte Carlo simulations for the Siemens Artiste Linac 6MV photon beam. <b>2019</b> , 24, 331-337		11
165	Radiological tissue equivalence of deformable silicone-based chemical radiation dosimeters (FlexyDos3D). <b>2019</b> , 20, 87-99		3
164	Cherenkov emission-based external radiotherapy dosimetry: I. Formalism and feasibility. <i>Medical Physics</i> , <b>2019</b> , 46, 2370-2382	4.4	3
163	Impact of inline magnetic fields on dose distributions for VMAT in lung tumor. <i>Physica Medica</i> , <b>2019</b> , 59, 100-106	2.7	4
162	A novel approach to medical radioisotope production using inverse kinematics: A successful production test of the theranostic radionuclide Cu. <b>2019</b> , 149, 89-95		3
161	Clinical implementation of magnetic resonance imaging guided adaptive radiotherapy for localized prostate cancer. <b>2019</b> , 9, 69-76		69
160	Influence of cone beam CT (CBCT) scan parameters on size specific dose estimate (SSDE): a Monte Carlo study. <i>Physics in Medicine and Biology</i> , <b>2019</b> , 64, 115002	3.8	3
159	Monte Carlo dose verification for a single-isocenter VMAT plan in multiple brain metastases. <b>2019</b> , 44, e51-e58		0
158	VALIDATION OF A BEAMNRC MONTE CARLO SIMULATION OF A BROAD BEAM DIAGNOSTIC X-RAY UNIT. <b>2019</b> , 185, 440-451		1
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