

ELI Beamlines Publications

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List of Scientific Articles Published in 2021

1. K.K. Swanson, A.J. Gonsalves, H.-S. Mao, T. Sipla, S.S. Bulanov, N.A. Bobrova, P.V. Sasorov, G. Korn, C. Benedetti, C.V. Pieronek, C.B. Schroeder, C.G.R. Geddes, E. Esarey, W.P. Leemans
Cryogenically formed discharge waveguide
PRAB 24 (2021) 091301(1) - 091301(6).
doi: <https://doi.org/10.1103/PhysRevAccelBeams.24.091301>
2. A Ruocco, G Duchateau, V.T.Tikhonchuk
Self-focusing of a spatially modulated beam within the paraxial complex geometrical optics framework in low-density plasmas
Plasma Phys. Control. Fusion 63 (2021) 1(125019) - 15(125019).
doi: doi.org/10.1088/1361-6587/ac2e43
3. A. Aab et al. (The Pierre Auger Collaboration, z FZÚ: A. Bakalová, J. Blažek, M. Boháčová, J. Chudoba, J. Ebr, P. Hamal, P. Janeček, J. Juryšek, D. Mandát, M. Palatka, M. Pech, M. Prouza, J. Řídký, E. Santos, P. Schovánek, P. Tobiška, P. Trávníček, J. Vícha, A. Yushkov, R. Cunniffe, J. Eliášek, S. Karpov, M. Mašek)
The FRAM robotic telescope for atmospheric monitoring at the Pierre Auger Observatory
JINST 16 (2021) P06027(1)
doi: [10.1088/1748-0221/16/06/P06027](https://doi.org/10.1088/1748-0221/16/06/P06027) ; WOS: [000691763600006](https://www.wikidata.org/wiki/Q111111111)
4. A. Aab et al.(The Pierre Auger Collaboration, z FZÚ: A. Bakalová, J. Blažek, M. Boháčová, J. Chudoba, J. Ebr, P. Hamal, P. Janeček, J. Juryšek, D. Mandát, M. Palatka, M. Pech, M. Prouza, J. Řídký, E. Santos, P. Schovánek, P. Tobiška, P. Trávníček, J. Vícha, A. Yushkov)
Calibration of the underground muon detector of the Pierre Auger Observatory
JINST 16 (2021) P04003(1)
doi: [10.1088/1748-0221/16/04/P04003](https://doi.org/10.1088/1748-0221/16/04/P04003) ; WOS: [000647393300008](https://www.wikidata.org/wiki/Q111111111)
5. A. Aab et al.(The Pierre Auger Collaboration, z FZÚ: A. Bakalová, J. Blažek, M. Boháčová, J. Chudoba, J. Ebr, P. Hamal, P. Janeček, J. Juryšek, D. Mandát, M. Palatka, M. Pech, M. Prouza, J. Řídký, E. Santos, P. Schovánek, P. Tobiška, P. Trávníček, J. Vícha, A. Yushkov)
Design and implementation of the AMIGA embedded system or data acquisition
JINST 16 (2021) T07008(1)
doi: [10.1088/1748-0221/16/07/T07008](https://doi.org/10.1088/1748-0221/16/07/T07008) ; WOS: [000694891700007](https://www.wikidata.org/wiki/Q111111111)
6. Stefan Weber, Yong Wu, Jianguo Wang
Recent progress in atomic and molecular physics for controlled fusion and astrophysics
MRE 6 (2021) 023002 (1) - 023002 (3).
doi: [10.1063/5.0045218](https://doi.org/10.1063/5.0045218) ; WOS: [000630134700001](https://www.wikidata.org/wiki/Q111111111)
7. S. Atzeni, D. Batani, C. N. Danson, L. A. Gizzi, M. Perlado, M. Tatarakis, V. Tikhonchuk, L. Volpe
An evaluation of sustainability and societal impact of high-power laser and fusion technologies: a case for a new European research infrastructure

- High Power Laser Sci. Eng. 9 (2021) 1 (e52) - 4 e(52).
doi: [10.1017/hpl.2021.41](https://doi.org/10.1017/hpl.2021.41)
8. S. A. Shekhanov, V. T. Tikhonchuk
[SRS-SBS competition and nonlinear laser energy absorption in a high temperature plasma](#)
Plasma Phys. Control. Fusion 63 (2021) 1(115016) - 11(115016).
doi: [10.1088/1361-6587/ac2614](https://doi.org/10.1088/1361-6587/ac2614)
 9. D. Raffestin, L. Lecherbourg, I. Lantuéjou, B. Vauzour, P. E. Masson-Laborde, X. Davoine, N. Blanchot, J. L. Dubois, X. Vaisseau, E. d'Humières, L. Gremillet, A. Duval, Ch. Reverdin, B. Rosse, G. Boutoux, J. E. Ducret, Ch. Rousseaux, V. Tikhonchuk, D. Batani
[Enhanced ion acceleration using the highenergy petawatt PETAL laser](#)
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 10. W. Yao, A. Fazzini, S. N. Chen, K. Burdonov, P. Antici, J. Béard, S. Bolaños, A. Ciardi, R. Diab, E. D. Filippov, S. Kisyov, V. Lelasseux, M. Miceli, Q. Moreno, V. Nastasa, S. Orlando, S. Pikuz, D. C. Popescu, G. Revet, X. Ribeyre, E. d'Humières, J. Fuchs
[Laboratory evidence for proton energization by collisionless shock surfing](#)
Nature Phys. nnn (2021) 1 - 19.
doi: [10.1038/s41567-021-01325-w](https://doi.org/10.1038/s41567-021-01325-w) ; WOS: [000686522600003](https://www.wos.org/wos/000686522600003)
 11. A. Aab et al.(The Pierre Auger Collaboration, z FZÚ: A. Bakalová, J. Blažek, M. Boháčová, J. Chudoba, J. Ebr, J. Juryšek, D. Mandát, M. Palatka, M. Pech, M. Prouza, J. Řídký, E. Santos, P. Schovánek, P. Tobiška, P. Trávníček, J. Vícha, A. Yushkov)
[Measurement of the Fluctuations in the Number of Muons in Extensive Air Showers with the Pierre Auger Observatory](#)
Phys. Rev. Lett. 126 (2021) 152002(1) - 152002(11).
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 12. A. Aab et al. (The Pierre Auger Collaboration, z FZÚ: A. Bakalová, J. Blažek, M. Boháčová, J. Chudoba, J. Ebr, J. Juryšek, D. Mandát, M. Palatka, M. Pech, M. Prouza, J. Řídký, E. Santos, P. Schovánek, P. Tobiška, P. Trávníček, J. Vícha, A. Yushkov)
[Design, upgrade and characterization of the silicon photomultiplier front-end for the AMIGA detector at the Pierre Auger Observatory](#)
JINST 16 (2021) P01026(1)
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 13. T. M. Jeong, S. V. Bulanov, P. Valenta, G. Korn, T. Zh. Esirkepov, J. K. Koga, A. S. Pirozhkov
[Ultra-strong attosecond laser focus produced by a relativistic-flying parabolic mirror](#)
XVII International Conference on X-Ray Lasers, 2020, XVII International Conference on X-Ray Lasers, 2020, Editor: Davide Bleiner, pp. 18860H-1-8, 8-10 DECEMBER 2020.
doi: [10.1117/12.2592047](https://doi.org/10.1117/12.2592047)
 14. K. VEYRINAS, J. VÁBEK, C. VALENTIN, D. DESCAMPS, C. PÉJOT, F. BURGY, E. CONSTANT, E. MÉVEL, AND F. CATOIRE
[Spectral filtering of high-order harmonics via optics-free focusing](#)
Opt. Express 29 (2021) 29813 - 29827.
doi: [10.1364/OE.436086](https://doi.org/10.1364/OE.436086)
 15. J. Nejd, U. Chaulagain, O. Hort, D.D. Mai, M. Albrecht, M. Jurkovič, O. Finke, S. Karatodorov, M. Raclavský, M. Lamač, E. Klimešová, Z. Hoque, A.H. Roos, M. Krikunova, J. Andreasson
[Update on laser-driven X-ray sources at ELI Beamlines](#)
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16. Lamac M., Chaulagain U., Jurkovic M., Nejd J., Bulanov S. V.
[Two-color nonlinear resonances in betatron oscillations of laser accelerated relativistic electrons](#)
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17. E. G. Gelfer, A. M. Fedotov, S. Weber
[Radiation induced acceleration of ions in a laser irradiated transparent foil](#)
New J. Phys. 23 (2021) 095002(1) - 095002(12).
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18. The CTA consortium (z FZÚ: A. Araudo, J. Blažek, J. Chudoba, J. Ebr, P. Janeček, J. Juryšek, D. Mandát, M. Prouza, P. Trávníček)
[Sensitivity of the Cherenkov Telescope Array to a dark matter signal from the Galactic centre](#)
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19. P. Hadjisolomou, T. M. Jeong , P. Valenta, G. Korn and S. V. Bulanov
[Gamma-ray flash generation in irradiating a thin foil target by a single-cycle tightly focused extreme power laser pulse](#)
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20. Stefan Karatodorov, Roberto Lera, Marek Raclavsky, Sebastian Lorenz, Uddhab Chaulagain & Jaroslav Nejd
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22. A. Mironov , E. G. Gelfer, A. M. Fedotov
[Onset of electron-seeded cascades in generic electromagnetic fields](#)
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[Counterpropagating radiative shock experiments on the orion laser](#)
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24. Shuhua Zhai, Vladimir Tikhonchuk, Longqing Yi, Anabella Araudo, Stefan Weber
[Weibel instability mediated laser hole boring and ion acceleration in an electrostatic shock](#)
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25. Theocharis Lamprou, Rodrigo Lopez-Martens, Stefan Haessler, Ioannis Lontos, Subhendu Kahaly, Javier Rivera-Dean, Philipp Stammer, Emilio Pisanty, Marcelo F. Ciappina, Maciej Lewenstein, Paraskevas Tzallas
[*Quantum-Optical Spectrometry in Relativistic Laser–Plasma Interactions Using the High-Harmonic Generation Process: A Proposal*](#)
Photonics 8 (2021) 192 (1) - 192(2).
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26. Ore Gottlieb, Noémie Globus
[*The Role of Jet–Cocoon Mixing, Magnetization, and Shock Breakout in Neutrino and Cosmic-Ray Emission from Short Gamma-Ray Bursts*](#)
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[*A multipurpose end-station for atomic, molecular and optical sciences and coherent diffractive imaging at ELI beamlines*](#)
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31. A. Mangione, A. Picciotto, D. Margarone, A. Malinowska, A. Szydlowsky, A. Velyhan, J. Krasa, E. Tomarchio and F. Ganci
[*Carbon nanotubes embedded in a polyimide foil for proton acceleration with a sub-ns laser*](#)
JINST 16 (2021) P07008 (1)
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32. Pavel Blaha, Chiara Feoli, Stefano Agosteo, Marco Calvaruso, Francesco Paolo Cammarata, Roberto Catalano, Mario Ciocca, Giuseppe Antonio Pablo Cirrone, Valeria Conte, Giacomo Cuttone, Angelica Facoetti, Giusi Irma Forte, Lorenzo Giuffrida, Giuseppe Magro, Daniele Margarone, Luigi Minafra, Giada Petringa, Gaia Pucci, Valerio Ricciardi, Enrico Rosa, Giorgio Russo

and Lorenzo Manti

[*The Proton-Boron Reaction Increases the Radiobiological Effectiveness of Clinical Low- and High-Energy Proton Beams: Novel Experimental Evidence and Perspectives*](#)

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[*Energetic alpha-particle sources produced through proton-boron reactions by high-energy high-intensity laser beams*](#)
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[*Role of relativistic laser intensity on isochoric heating of metal wire targets*](#)
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35. D. N. Yue, M. Chen, P. F. Geng, X. H. Yuan, S. M. Weng, S. S. Bulanov, S. V. Bulanov, K. Mima, Z. M. Sheng and J. Zhang
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[*Role of pH in the synthesis and growth of gold nanoparticles using L-asparagine: a combined experimental and simulation study*](#)
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SPIE Optics + Optoelectronics, 2021, SPIE Optics + Optoelectronics, 2021, Editor: Stepan S. Bulanov, Jörg Schreiber, Carl B. Schroeder, pp. 11779 (1-6), 19-29.4.2021
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[*Reaching high laser intensity by a radiating electron*](#)
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41. Yan-JunGu, Shigeo Kawata & SergeiV. Bulanov
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42. Filip Grepl, Josef Krása, Andriy Velyhan, Massimo De Marco, Jan Dostál, Miroslav Pfeifer and Daniele Margarone
[*Distortion of Thomson Parabolic-Like Proton Patterns Due to Electromagnetic Interference*](#)
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[*Radiobiology Experiments With Ultra-high Dose Rate Laser-Driven Protons: Methodology and State-of-the-Art*](#)
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[*High-repetition rate solid target delivery system for PW-class laser-matter interaction at ELI Beamlines*](#)
Rev. Sci. Instrum. 92 (2021) 063504 - 063504-7.
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[*Frequency Conversion of Lasers in a Dynamic Plasma Grating*](#)
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48. Chao Lu1, Vladimir Tikhonchuk, Stefan Weber
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Plasma Phys. Control. Fusion 63 (2021) 075005(1) - 075005(17).
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