

# Pietro Musumeci

## List of Publications by Year in descending order

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108  
papers

2,557  
citations

172386

29  
h-index

214721

47  
g-index

108  
all docs

108  
docs citations

108  
times ranked

1899  
citing authors

| #  | ARTICLE   | IF   | CITATIONS |
|----|---|------|-----------|
| 1  | Direct Measurement of Sub-10Åfs Relativistic Electron Beams with Ultralow Emittance. Physical Review Letters, 2017, 118, 154802.  | 2.9  | 135       |
| 2  | Experimental Generation and Characterization of Uniformly Filled Ellipsoidal Electron-Beam Distributions. Physical Review Letters, 2008, 100, 244801.                                     | 2.9  | 122       |
| 3  | Laser-induced melting of a single crystal gold sample by time-resolved ultrafast relativistic electron diffraction. Applied Physics Letters, 2010, 97, .                                  | 1.5  | 106       |
| 4  | Surface-Plasmon Resonance-Enhanced Multiphoton Emission of High-Brightness Electron Beams from a Nanostructured Copper Cathode. Physical Review Letters, 2013, 110, 074801.               | 2.9  | 88        |
| 5  | Single-Shot MeV Transmission Electron Microscopy with Picosecond Temporal Resolution. Physical Review Applied, 2014, 2, .   | 1.5  | 88        |
| 6  | Superradiant and stimulated-superradiant emission of bunched electron beams. Reviews of Modern Physics, 2019, 91, .   | 16.4 | 80        |
| 7  | High quality single shot diffraction patterns using ultrashort megaelectron volt electron beams from a radio frequency photoinjector. Review of Scientific Instruments, 2010, 81, 013306. | 0.6  | 79        |
| 8  | Electron Ghost Imaging. Physical Review Letters, 2018, 121, 114801.   | 2.9  | 77        |
| 9  | Meter-Scale Terahertz-Driven Acceleration of a Relativistic Beam. Physical Review Letters, 2018, 120, 094801.   | 2.9  | 72        |
| 10 | Multiphoton Photoemission from a Copper Cathode Illuminated by Ultrashort Laser Pulses in an rf Photoinjector. Physical Review Letters, 2010, 104, 084801.                                | 2.9  | 68        |
| 11 | Observation of Time-Domain Modulation of Free-Electron-Laser Pulses by Multi-peaked Electron-Energy Spectrum. Physical Review Letters, 2013, 111, 114802.                                 | 2.9  | 68        |
| 12 | Velocity bunching of high-brightness electron beams. Physical Review Special Topics: Accelerators and Beams, 2005, 8, .   | 1.8  | 65        |
| 13 | Advances in bright electron sources. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2018, 907, 209-220. | 0.7  | 64        |
| 14 | Relativistic electron diffraction at the UCLA Pegasus photoinjector laboratory. Ultramicroscopy, 2008, 108, 1450-1453.  | 0.8  | 60        |
| 15 | Direct Measurement of the Double Emittance Minimum in the Beam Dynamics of the Sparc High-Brightness Photoinjector. Physical Review Letters, 2007, 99, 234801.                            | 2.9  | 59        |
| 16 | High-field nonlinear optical response and phase control in a dielectric laser accelerator. Communications Physics, 2018, 1, .   | 2.0  | 58        |
| 17 | Capturing ultrafast structural evolutions with a single pulse of MeV electrons: Radio frequency streak camera based electron diffraction. Journal of Applied Physics, 2010, 108, .        | 1.1  | 52        |
| 18 | A perspective on novel sources of ultrashort electron and X-ray pulses. Chemical Physics, 2012, 392, 1-9.   | 0.9  | 51        |

| #  | ARTICLE   | IF  | CITATIONS |
|----|---|-----|-----------|
| 19 | Maximum current density and beam brightness achievable by laser-driven electron sources. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2014, 17, .  | 1.8 | 50        |
| 20 | Nonlinear Longitudinal Space Charge Oscillations in Relativistic Electron Beams. <i>Physical Review Letters</i> , 2011, 106, 184801.  | 2.9 | 48        |
| 21 | High Energy Gain of Trapped Electrons in a Tapered, Diffraction-Dominated Inverse-Free-Electron Laser. <i>Physical Review Letters</i> , 2005, 94, 154801.   | 2.9 | 47        |
| 22 | Enhanced energy gain in a dielectric laser accelerator using a tilted pulse front laser. <i>Optics Express</i> , 2018, 26, 29216.   | 1.7 | 42        |
| 23 | Next generation high brightness electron beams from ultrahigh field cryogenic rf photocathode sources. <i>Physical Review Accelerators and Beams</i> , 2019, 22, .  | 0.6 | 41        |
| 24 | Crystallisation mechanism of amorphous silicon carbide. <i>Applied Surface Science</i> , 2001, 184, 123-127.  | 3.1 | 39        |
| 25 | High-quality electron beams from a helical inverse free-electron laser accelerator. <i>Nature Communications</i> , 2014, 5, 4928.   | 5.8 | 39        |
| 26 | Longitudinal phase space characterization of the blow-out regime of rf photoinjector operation. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2009, 12, .                                 | 1.8 | 31        |
| 27 | Experiments on laser driven beatwave acceleration in a ponderomotively formed plasma channel. <i>Physics of Plasmas</i> , 2004, 11, 2875-2881.  | 0.7 | 30        |
| 28 | Helical Electron-Beam Microbunching by Harmonic Coupling in a Helical Undulator. <i>Physical Review Letters</i> , 2009, 102, 174801.  | 2.9 | 30        |
| 29 | Imaging single electrons to enable the generation of ultrashort beams for single-shot femtosecond relativistic electron diffraction. <i>Journal of Applied Physics</i> , 2011, 110, .                       | 1.1 | 30        |
| 30 | Tapering enhanced stimulated superradiant amplification. <i>New Journal of Physics</i> , 2015, 17, 063036.  | 1.2 | 30        |
| 31 | Demonstration of Single-Shot Picosecond Time-Resolved MeV Electron Imaging Using a Compact Permanent Magnet Quadrupole Based Lens. <i>Physical Review Letters</i> , 2016, 117, 024801.                      | 2.9 | 30        |
| 32 | New technology based on clamping for high gradient radio frequency photogun. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2015, 18, .  | 1.8 | 30        |
| 33 | Electro-optic sampling at 90° interaction geometry for time-of-arrival stamping of ultrafast relativistic electron diffraction. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2010, 13, . | 1.8 | 28        |
| 34 | High Efficiency Energy Extraction from a Relativistic Electron Beam in a Strongly Tapered Undulator. <i>Physical Review Letters</i> , 2016, 117, 174801.  | 2.9 | 28        |
| 35 | Ultrafast Relativistic Electron Nanoprobes. <i>Communications Physics</i> , 2019, 2, .  | 2.0 | 28        |
| 36 | The free-electron laser harmonic cascade. <i>New Journal of Physics</i> , 2006, 8, 294-294.   | 1.2 | 25        |

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|----|--|------|-----------|
| 37 | Single-shot 35 fs temporal resolution electron shadowgraphy. Applied Physics Letters, 2013, 102, .   | 1.5  | 23        |
| 38 | Effect of an ultrafast laser induced plasma on a relativistic electron beam to determine temporal overlap in pump-probe experiments. Ultramicroscopy, 2013, 127, 14-18.  | 0.8  | 21        |
| 39 | Generation and measurement of velocity bunched ultrashort bunch of pC charge. Physical Review Special Topics: Accelerators and Beams, 2015, 18, .  | 1.8  | 21        |
| 40 | THz-driven zero-slippage IFEL scheme for phase space manipulation. New Journal of Physics, 2016, 18, 113045.   | 1.2  | 20        |
| 41 | Single-pass high-efficiency terahertz free-electron laser. Nature Photonics, 2022, 16, 441-447.  | 15.6 | 20        |
| 42 | Demonstration of Cascaded Modulator-Chicane Microbunching of a Relativistic Electron Beam. Physical Review Letters, 2018, 120, 114802.   | 2.9  | 19        |
| 43 | Experimental observation of helical microbunching of a relativistic electron beam. Applied Physics Letters, 2012, 100, .   | 1.5  | 18        |
| 44 | High efficiency tapered free-electron lasers with a prebunched electron beam. Physical Review Accelerators and Beams, 2017, 20, .  | 0.6  | 18        |
| 45 | rf streak camera based ultrafast relativistic electron diffraction. Review of Scientific Instruments, 2009, 80, 013302.  | 0.6  | 16        |
| 46 | Terawatt attosecond x-ray source driven by a plasma accelerator. APL Photonics, 2021, 6, .   | 3.0  | 16        |
| 47 | Broadband THz amplification and superradiant spontaneous emission in a guided FEL. Optics Express, 2019, 27, 20221.  | 1.7  | 16        |
| 48 | Electron emission characterization of Mg photocathode grown by pulsed laser deposition within an S-band rf gun. Physical Review Special Topics: Accelerators and Beams, 2009, 12, .  | 1.8  | 15        |
| 49 | Longitudinal profile diagnostic scheme with subfemtosecond resolution for high-brightness electron beams. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .  | 1.8  | 15        |
| 50 | Hollow cone illumination for fast TEM, and outrunning damage with electrons. Journal of Physics B: Atomic, Molecular and Optical Physics, 2015, 48, 214003.  | 0.6  | 15        |
| 51 | Brightness of femtosecond nonequilibrium photoemission in metallic photocathodes at wavelengths near the photoemission threshold. Journal of Applied Physics, 2018, 124, .   | 1.1  | 15        |
| 52 | Ultrafast optical melting of trimer superstructure in layered $1T\text{-TaTe}_2$ . Communications Physics, 2021, 4, .  | 2.0  | 15        |
| 53 | TREDI: fully 3D beam dynamics simulation of RF guns, bendings and FELs. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1999, 436, 443-444. | 0.7  | 14        |
| 54 | Tapering enhanced stimulated superradiant oscillator. Physical Review Accelerators and Beams, 2018, 21, .  | 0.6  | 13        |

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| 55 | Single-shot reconstruction of core 4D phase space of high-brightness electron beams using metal grids. <i>Physical Review Accelerators and Beams</i> , 2018, 21, .   | 0.6 | 13        |
| 56 | Novel Radio-Frequency Gun Structures for Ultrafast Relativistic Electron Diffraction. <i>Microscopy and Microanalysis</i> , 2009, 15, 290-297.   | 0.2 | 11        |
| 57 | Ultrafast gating of a mid-infrared laser pulse by a sub-pC relativistic electron beam. <i>Journal of Applied Physics</i> , 2015, 118, 234506.  | 1.1 | 11        |
| 58 | Optical design for increased interaction length in a high gradient dielectric laser accelerator. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2018, 909, 252-256.                    | 0.7 | 11        |
| 59 | Dopant profile measurements in ion implanted 6H-SiC by scanning capacitance microscopy. <i>Applied Surface Science</i> , 2001, 184, 183-189.   | 3.1 | 10        |
| 60 | Efficient harmonic microbunching in a 7th-order inverse-free-electron laser interaction. <i>Physical Review Special Topics: Accelerators and Beams</i> , 2009, 12, .   | 1.8 | 10        |
| 61 | Self-consistent numerical approach to track particles in free electron laser interaction with electromagnetic field modes. <i>Physical Review Accelerators and Beams</i> , 2020, 23, .   | 0.6 | 10        |
| 62 | High-energy ion damage in semicrystalline polyvinylidene fluoride. <i>Journal of Applied Physics</i> , 1995, 77, 3766-3773.  | 1.1 | 9         |
| 63 | S-band 1.4 cell photoinjector design for high brightness beam generation. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2017, 865, 109-113.   | 0.7 | 9         |
| 64 | Knife-edge based measurement of the 4D transverse phase space of electron beams with picometer-scale emittance. <i>Physical Review Accelerators and Beams</i> , 2019, 22, .  | 0.6 | 9         |
| 65 | Positron sources: from conventional to advanced accelerator concepts-based colliders. <i>Journal of Instrumentation</i> , 2022, 17, P05015.  | 0.5 | 9         |
| 66 | The SPARC/X SASE-FEL Projects. <i>Laser and Particle Beams</i> , 2004, 22, 341-350.  | 0.4 | 8         |
| 67 | A THz driven split-ring resonator based ultrafast relativistic electron streak camera. <i>AIP Advances</i> , 2019, 9, 085209.  | 0.6 | 8         |
| 68 | A proposal for fs-electron microscopy experiments on high-energy excitations in solids. <i>Micron</i> , 2014, 63, 40-46.   | 1.1 | 7         |
| 69 | Progress on the Hybrid Gun Project at UCLA. <i>Physics Procedia</i> , 2014, 52, 2-6.   | 1.2 | 7         |
| 70 | Challenges in simulating beam dynamics of dielectric laser acceleration. <i>International Journal of Modern Physics A</i> , 2019, 34, 1942031.   | 0.5 | 7         |
| 71 | Optical and structural properties of SiC layers grown by an electron cyclotron resonance CVD technique. <i>Diamond and Related Materials</i> , 2001, 10, 1264-1267.  | 1.8 | 5         |
| 72 | SHaRD: A beam dynamics simulation code for dielectric laser accelerators based on spatial harmonic field expansion. <i>Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment</i> , 2021, 1013, 165635. | 0.7 | 5         |

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|----|---|------|-----------|
| 73 | Mapping photocathode quantum efficiency with ghost imaging. <i>Physical Review Accelerators and Beams</i> , 2020, 23, .   | 0.6  | 5         |
| 74 | Considerations for a TeV collider based on dielectric laser accelerators. <i>Journal of Instrumentation</i> , 2022, 17, P05012.   | 0.5  | 5         |
| 75 | Commissioning and measurements of the Neptune photo-injector. <i>AIP Conference Proceedings</i> , 2001, , .   | 0.3  | 4         |
| 76 | Double-shot MeV electron diffraction and microscopy. <i>Structural Dynamics</i> , 2017, 4, 044025.  | 0.9  | 4         |
| 77 | Design and implementation of an optimal laser pulse front tilting scheme for ultrafast electron diffraction in reflection geometry with high temporal resolution. <i>Structural Dynamics</i> , 2017, 4, 044032. | 0.9  | 4         |
| 78 | Ultrashort electron probe opportunities. <i>Nature Photonics</i> , 2020, 14, 199-200.   | 15.6 | 4         |
| 79 | Resonant phase matching by oblique illumination of a dielectric laser accelerator. <i>Physical Review Accelerators and Beams</i> , 2021, 24, .  | 0.6  | 4         |
| 80 | Ion track effect on point defect production in SiC. <i>Radiation Effects and Defects in Solids</i> , 2011, 166, 480-486.  | 0.4  | 3         |
| 81 | Defects annealing in 4H-SiC epitaxial layer probed by low temperature photoluminescence. <i>Materials Science in Semiconductor Processing</i> , 2012, 15, 740-743.  | 1.9  | 3         |
| 82 | Fabrication process for thick-film micromachined multi-pole electromagnets. <i>Journal of Microelectromechanical Systems</i> , 2014, 23, 505-507.   | 1.7  | 3         |
| 83 | Dielectric laser acceleration and focusing using short-pulse lasers with an arbitrary laser phase distribution. <i>AIP Conference Proceedings</i> , 2017, , .   | 0.3  | 3         |
| 84 | Temporal magnification for streaked ultrafast electron diffraction and microscopy. <i>Ultramicroscopy</i> , 2019, 199, 1-6.   | 0.8  | 3         |
| 85 | High-Energy Time-Resolved Electron Diffraction. <i>Springer Handbooks</i> , 2019, , 971-1008.   | 0.3  | 3         |
| 86 | Commissioning of the Neptune photoinjector. , 0, , .  |      | 3         |
| 87 | Diamagnetic fields due to finite-dimension intense beams in high-gain free-electron lasers. <i>Physical Review E</i> , 1998, 58, R2737-R2740.   | 0.8  | 2         |
| 88 | Particle and light-induced luminescence degradation in a-SiC:H. <i>Applied Surface Science</i> , 2001, 184, 190-193.  | 3.1  | 2         |
| 89 | Ultrafast beam research at the PEGASUS laboratory. , 2007, , .  |      | 2         |
| 90 | Electro-optic sampling for time resolving relativistic ultrafast electron diffraction. , 2009, , .  |      | 2         |

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|-----|---|-----|-----------|
| 91  | Longitudinal phase space manipulation of an ultrashort electron beam via THz IFEL interaction. AIP Conference Proceedings, 2013, , .  | 0.3 | 2         |
| 92  | Non-invasive low charge electron beam time-of-arrival diagnostic using a plasmonics-enhanced photoconductive antenna. Applied Physics Letters, 2018, 113, .   | 1.5 | 2         |
| 93  | Beam dynamics in dielectric laser acceleration. Journal of Instrumentation, 2022, 17, P05014.   | 0.5 | 2         |
| 94  | On the IFEL experiment at the UCLA Neptune Lab. , 0, , .  |     | 1         |
| 95  | NON-LINEAR EVOLUTION OF SHORT PULSES IN FEL CASCADED UNDULATORS AND THE FEL HARMONIC CASCADE. International Journal of Modern Physics A, 2007, 22, 3794-3809.   | 0.5 | 1         |
| 96  | High-Gradient High-Energy-Gain Inverse Free Electron Laser Experiment Using a Helical Undulator. AIP Conference Proceedings, 2010, , .  | 0.3 | 1         |
| 97  | An asymmetric emittance electron source for the GALAXIE dielectric-laser accelerator injector. , 2013, , .  |     | 1         |
| 98  | Ultrafast optically-induced melting of trimer clusters in 1Tâ€™TaTe2. , 2021, , .   |     | 1         |
| 99  | Velocity bunching experiment at the neptune laboratory. , 0, , .  |     | 0         |
| 100 | Study of a THz IFEL prebuncher for laser-plasma accelerators. AIP Conference Proceedings, 2004, , .   | 0.3 | 0         |
| 101 | Optimum electron bunch creation in a photoinjector using space-charge expansion. , 2007, , .  |     | 0         |
| 102 | Ultra-Short Electron Beam Compression and Phase Locking Using an Inverse Free Electron Laser Interaction in the THz Regime. , 2010, , .   |     | 0         |
| 103 | Imaging nanometer-scale beamlets arrays of relativistic electron beams. , 2013, , .   |     | 0         |
| 104 | IFEL driven mode locked free electron laser. Journal of Physics B: Atomic, Molecular and Optical Physics, 2014, 47, 234007.   | 0.6 | 0         |
| 105 | RF Photoinjector Based Time-Resolved MeV Electron Microscopy. Microscopy and Microanalysis, 2015, 21, 653-654.  | 0.2 | 0         |
| 106 | Summary of Working Group 3: Laser and High-Gradient Structure-Based Acceleration. , 2018, , .   |     | 0         |
| 107 | All Optical Control of Beam Dynamics in a DLA. , 2018, , .  |     | 0         |
| 108 | Tapered helical undulator system for high efficiency energy extraction from a high brightness electron beam. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2022, 1028, 166370. | 0.7 | 0         |