

Jméno, příjmení, titul žadatele:

Given name, surname, academic degree of student:

Petr Valenta, Ing.

Seznam publikovaných prací:

List of publications:

Klimo, O., Valenta, P., and Weber, S. (2017). Laser absorption and ion acceleration under tight-focusing conditions. In Bret A., Fajardo M., Westerhof E., Melzer A., Dromey B., and Riconda C., editors, *44th EPS Conference on Plasma Physics*, page P5.225. European Physical Society, EPS.

Valenta, P., Klimo, O., Bulanov, S. V., and Korn, G. (2018). On high-quality electron beam generated by breaking wake wave in near-critical density plasmas. In Michaut C., Berndt J., Mantsinen M., Coda S., Lapenta G., and Weber S., editors, *45th EPS Conference on Plasma Physics*, page P2.2031. European Physical Society, EPS.

Valenta, P., Klimo, O., Grittani, G. M., Esirkepov, T. Z., Korn, G., and Bulanov, S. V. (2019). Wakefield excited by ultrashort laser pulses in near-critical density plasmas. In Esarey, E., Schroeder, C. B., and Schreiber, J., editors, *Laser Acceleration of Electrons, Protons, and Ions V*, volume 11037, pages 57-65. International Society for Optics and Photonics, SPIE. DOI: 10.1117/12.2521040.

Mu, J., Gu, Y., Jeong, T. M., Valenta, P., Klimo, O., Esirkepov, T. Z., Pirozhkov, A. S., Koga, J. K., Kando, M., Korn, G., and Bulanov, S. V. (2019). High order harmonics generation via laser reflection at electron density peaks. In Korn G. and Silva L. O., editors, *Research Using Extreme Light: Entering New Frontiers with Petawatt-class Lasers IV*, volume 11039, pages 9-13. International Society for Optics and Photonics, SPIE. DOI: 10.1117/12.2524653.

Mu, J., Esirkepov, T. Z., Valenta, P., Jeong, T. M., Gu, Y., Koga, J. K., Pirozhkov, A. S., Kando, M., Korn, G., and Bulanov, S. V. (2019). High-order harmonics from laser irradiated electron density singularity formed at the bow wave in the laser plasma. *Physics of Wave Phenomena*, **27**(4):247-256. DOI: 10.3103/S1541308X19040010.

Matys, M., Pšikal, J., Danielová, M., Valenta, P., and Bulanov, S. V. (2019). Laser-driven ion acceleration using cryogenic hydrogen targets. In Pešatová, K., Poláková, B., Cawley, J., and Červenková, Z., editors, *Supercomputing in Science and Engineering 2017-18*, pages 149-151. VSB - Technical University of Ostrava.

Lazzarini, C. M., Goncalves, L. V., Grittani, G. M., Lorenz, S., Nevrkla, M., Valenta, P., Levato, T., Bulanov, S. V., and Korn, G. (2020). Electron acceleration at ELI Beamlines: towards high-energy and high-repetition-rate accelerators. *International Journal of Modern Physics A*, **34**(34):1943010. DOI: 10.1142/S0217751X19430103.

Lazzarini, C. M., Goncalves, L. V., Grittani, G. M., Lorenz, S., Nevrkla, M., Valenta, P., Levato, T., Bulanov, S. V., and Korn, G. (2020). Electron acceleration at ELI Beamlines: towards high-energy and high-repetition-rate accelerators. In Chattopadhyay, S., Mourou, G.,

Shiltsev, V. D., and Tajima, T., editors, *Beam Acceleration in Crystals and Nanostructures*, pages 153-170. World Scientific Publishing. DOI: 10.1142/9789811217135_0010.

Valenta, P., Esirkepov, T. Z., Koga, J. K., Pirozhkov, A. S., Kando, M., Kawachi, T., Liu, Y. K., Fang, P., Chen, P., Mu, J., Korn, G., Klimo, O., and Bulanov, S. V. (2020). Recoil effects on reflection from relativistic mirrors in laser plasmas. *Physics of Plasmas*, **27**(3):032109. DOI: 10.1063/1.5142084.

Esirkepov, T. Z., Mu, J., Gu, Y., Jeong, T. M., Valenta, P., Klimo, O., Koga, J. K., Kando, M., Neely, D., Korn, G., Bulanov, S. V., and Pirozhkov, A. S. (2020). Optical probing of relativistic plasma singularities. *Physics of Plasmas*, **27**(3):052103. DOI: 10.1063/5.0004525.

Mu, J., Esirkepov, T. Z., Valenta, P., Gu, Y., Jeong, T. M., Pirozhkov, A. S., Koga, J. K., Kando, M., Korn, G., and Bulanov, S. V. (2020). Relativistic flying forcibly oscillating reflective diffraction grating. *Physical Review E*, **102**(5):053202. DOI: 10.1103/PhysRevE.102.053202.

Valenta, P., Esirkepov, T. Z., Koga, J. K., Pirozhkov, A. S., Kando, M., Kawachi, T., Liu, Y. K., Fang, P., Chen, P., Mu, J., Korn, G., Klimo, O., and Bulanov, S. V. (2020). Relativistic flying mirrors as a compact source of coherent short-wavelength radiation. In Assoufid, L., Naulleau, P., Couprie, M., Ishikawa, T., Rocca, J., Haefner, C., Sansone, G., Metzger, T., Quéré, F., Ebrahim-Zadeh, M., Helmy, A., Laurell, F., and Leo, G., editors, *OSA High-brightness Sources and Light-driven Interactions Congress 2020*, page EM1A.5. Optical Society of America, OSA. DOI: 10.1364/EUVXRAY.2020.EM1A.5.

Valenta, P., Esirkepov, T. Z., Koga, J. K., Nečas, A., Grittani, G. M., Lazzarini, C. M., Klimo, O., Korn, G., and Bulanov, S. V. (2020). Polarity reversal of wakefields driven by ultrashort pulse laser. *Physical Review E*, **102**(5):053216. DOI: 10.1103/PhysRevE.102.053216.

Valenta, P., Grittani, G. M., Lazzarini, C. M., Klimo, O., and Bulanov, S. V. (2021). Ring-shaped electron beams from laser-wakefield accelerator. In Bulanov, S. S., Schreiber, J., and Schroeder, C. B., editors, *Laser Acceleration of Electrons, Protons, and Ions VI*, volume 11779, pages 14-22. International Society for Optics and Photonics, SPIE. DOI: 10.1117/12.2589222.

Matys, M., Valenta, P., Kecová, M., Nishihara, K., Pšíkal, J., Esirkepov, T. Z., Koga, J. K., Nečas, A., Grittani, G. M., Lazzarini, C. M., Klimo, O., Korn, G., and Bulanov, S. V. (2021). Laser-driven acceleration of charged particles. In Vondrák, V., Kozubek, T., and Jansík, B., editors, *Supercomputing in Science and Engineering 2019-20*, pages 86-88. VSB - Technical University of Ostrava.

Jeong, T. M., Bulanov, S. V., Valenta, P., Korn, G., Esirkepov, T. Z., Koga, J. K., and Pirozhkov, A. S (2021). Ultra-strong attosecond laser focus produced by a relativistic-flying parabolic mirror. In Bleiner, D., editor, *International Conference on X-ray Lasers 2020*, volume 11886, pages 125-132. International Society for Optics and Photonics, SPIE. DOI: 10.1117/12.2592047.

Hadjisolomou, P., Jeong, T. M., Valenta, P., Korn, G., and Bulanov, S. V. (2021). Gamma-ray flash generation in irradiating a thin foil target by a single-cycle tightly focused extreme power laser pulse. *Physical Review E*, **104**(1):015203. DOI: 10.1103/PhysRevE.104.015203.

Jeong, T. M., Bulanov, S. V., Valenta, P., Korn, G., Esirkepov, T. Z., Koga, J. K., Pirozhkov, A. S., Kando, M., and Bulanov, S. S. (2021). Relativistic-flying laser focus by a laser produced parabolic plasma mirror. *Physical Review A*, **104**(6):053533. DOI: 10.1103/PhysRevA.104.053533.

Valenta, P., Grittani, G. M., Lazzarini, C. M., Klimo, O., and Bulanov, S. V. (2021). On the electromagnetic-electron rings originating from the interaction of high-power short-pulse laser and underdense plasma. *Physics of Plasmas*, **28**(12):122104. DOI: 10.1063/5.0065167.

Hadjisolomou, P., Jeong, T. M., Valenta, P., Kolenatý, D., Versaci, R., Olšovcová, V., Ridgers, C. P., and Bulanov, S. V. (2022). Gamma-ray flash in the interaction of a tightly focused single-cycle ultraintense laser pulse with a solid target. *Journal of Plasma Physics*, **88**(1):905880104. DOI: 10.1017/S0022377821001318.