

List of author's publications & granted projects

Granted projects:

Computational projects:

1. *Project title:* Effects of advanced target designs on laser-accelerated ion beams parameters
Principal investigator: Ing. Martina Greplová Žáková
Provider: IT4Innovations National Supercomputing Center
Computational core hours: 308.000
Project ID: OPEN-19-21
2. *Project title:* Multidimensional simulations of advanced target designs with the aim of improving parameters of laser-accelerated particle beams
Principal investigator: Ing. Martina Greplová Žáková
Provider: IT4Innovations National Supercomputing Center
Computational core hours: 567.000
Project ID: OPEN-10-9

Experimental projects:

1. *Project title:* Non-destructive methods of monument testing
Principal investigator: Ing. Martina Greplová Žáková
Operational programme: OP Prague – Growth Pole of the Czech Republic
Provider: City of Prague
Priority axis: 07.1 Strengthening research, technological development and innovation
Project ID: CZ.07.1.02/0.0/0.0/17_049/0000831
Time period: 1.3.2019 – 30.6.2022
Total costs: 19.712.777 CZK
EU co-financing rate: 50%
Cooperation with physical or historical/archaeological science institutes:
 - Czech National Gallery
 - Institute of Archaeology of the CAS
 - The city of Prague Museum
 - Istituto Nazionale di Fisica Nucleare - Laboratori Nazionali del Sud (INFN LNS)
 - private subjects

Publications related to the scope of this thesis:

First author:

1. Zakova, M. G., Psikal, J., Schillaci, F., & Margarone, D. (2021). Improving laser-accelerated proton beam divergence by electric and magnetic fields induced in flat channel-like targets. *Plasma Physics and Controlled Fusion*, 63(8), 085005.

Co-author:

1. Cirrone, G. A., Petringa, G., Catalano, R., Schillaci, F., Allegra, L., Amato, A., ... & Margarone, D. (2020). ELIMED-ELIMAIA: The First Open User Irradiation Beamline for Laser-Plasma-Accelerated Ion Beams. *Frontiers in Physics*, 8, 564907.
2. Margarone, D., Cirrone, G. A., Cuttone, G., Amico, A., Ando, L., Borghesi, M., ... & Korn, G. (2018). ELIMAIA: A laser-driven ion accelerator for multidisciplinary applications. *Quantum Beam Science*, 2(2), 8.

In the review process:

1. D. Margarone, D., Ahmed, H., Chatain, D., Martin, P., Grepl, F., Greplova Zakova, M., Doria, D., ... & Borghesi, M. (2021). Enhanced Proton Acceleration by Efficient Hole-Boring Radiation-Pressure in Cryogenic Hydrogen. *Physical Review Letters*

Proceedings:

1. Psikal, J., Horny, V., Zakova, M., & Matys, M. (2019, April). Comparison of ion acceleration from nonexpanded and expanded thin foils irradiated by ultrashort petawatt laser pulse. In *Laser Acceleration of Electrons, Protons, and Ions V* (Vol. 11037, p. 1103708). International Society for Optics and Photonics.
2. Zakova, M.; Psikal, J.; Margarone, D.; Korn, G., Decreasing divergence and enhancing particle number of laser-driven ion beams by various target designs and laser parameters, 43rd EPS Conference on Plasma Physics, European Physical Society, 2016
3. Zakova, M., Psikal, J., Margarone, D., Maggiore, M., & Korn, G. (2015, May). Reduction of angular divergence of laser-driven ion beams during their acceleration and transport. In *Research Using Extreme Light: Entering New Frontiers with Petawatt-Class Lasers II* (Vol. 9515, p. 95151F). International Society for Optics and Photonics.

Others:

Co-author:

1. Tryus, M., Grepl, F., Chagovets, T., Velyhan, A., Giuffrida, L., Stancek, S., ... & Margarone, D. (2020). TERESA Target Area at ELI Beamlines. *Quantum Beam Science*, 4(4), 37.
2. Bechet, S., Versaci, R., Rollet, S., Olsovcova, V., Fajstavr, A., Zakova, M., & Margarone, D. (2016). Radiation protection of a proton beamline at ELI-Beamlines. *Journal of Instrumentation*, 11(12), C12019.