

**Given name, surname, academic degree of student:**

**Ing. Jan Kaufman**

**Seznam publikovaných prací:**

**List of publications:**

**1. Publications related to the doctoral thesis**

**1.1. Peer-reviewed**

- [1] **J. Kaufman**, J. Racek, M. Cieslar, P. Minárik, M.A. Steiner, S.R. Mannava, V.K. Vasudevan, A. Sharma, M. Böhm, J. Brajer, J. Pilar, L. Pína, and T. Mocek, "The effect of laser shock peening with and without protective coating on intergranular corrosion of sensitized AA5083," *Corrosion Science*, vol. 194, 2022. (cited by 4)
- [2] **J. Kaufman**, Z. Špirit, V.K. Vasudevan, M.A. Steiner, S.R. Mannava, J. Brajer L. Pína, and Tomáš Mocek, "Effect of Laser Shock Peening Parameters on Residual Stresses and Corrosion Fatigue of AA5083," *Metals*, vol. 11, no. 10, 2021.
- [3] **J. Kaufman**, M. Böhm, J. Brajer, and S. Zulic, "Laser Shock Peening of aluminium alloys to enhance surface properties," *MM Science Journal*, 2019. (cited by 1)
- [4] S. Zulic, D. Rostohar, **J. Kaufman**, S. Pathak, J. Kopecek, and M. Böhm, "Fatigue life enhancement of additive manufactured 316l stainless steel by LSP using a DPSS laser system," *Surface Engineering*, pp. 1-8, 2022.
- [5] Z. Špirit, **J. Kaufman**, M. Chocholoušek, and J. Strejcius, "Mechanical Tests Results of Laser Shock Peening-Treated Austenitic Steel," *Journal of Nuclear Engineering and Radiation Science*, vol. 7, no. 2, 2021. (cited by 1)
- [6] M. Scius-Bertrand, L. Videau, A. Rondepierre, E. Lescoute, Y. Rouchausse, **J. Kaufman**, D. Rostohar, J. Brajer, and Laurent Berthe, "Laser induced plasma characterization in direct and water confined regimes: new advances in experimental studies and numerical modelling," *Journal of Physics D: Applied Physics*, vol. 54, 2021. (cited by 13)
- [7] J. Kubásek, O. Molnárová, J. Capek, K. Bartha, J. Cížek, P. Doležal, J. Racek, **J. Kaufman**, J. Řídký, and P. Lejcek, "Laser shock peening of copper poly- and single crystals," *Materials Characterization*, vol. 174, 2021. (cited by 2)
- [8] M. Böhm, **J. Kaufman**, J. Brajer, and D. Rostohar, "Robotic arm human-machine interface for Laser Shock Peening applications," *MM Science Journal*, 2019. (cited by 2)

## 1.2. Conference contributions

- [9] **J. Kaufman**, J. Racek, M. Cieslar, P. Minárik, M.A. Steiner, S.R. Mannava, V.K. Vasudevan, J. Brajer, J. Pilar, L. Pína, T. Mocek, "Laser Shock Peening to enhance stress corrosion cracking and corrosion fatigue resistance in marine aluminium alloys," in *14th International Conference on Shot Peening*, Milan, Italy, 2022.
- [10] A. Cunha, R.O. Giacomelli, **J. Kaufman**, J. Brajer, and T.S. Pereira, "An Overview on Laser Shock Peening Process: From Science to Industrial Applications," in *SBFoton International Optics and Photonics Conference*, Sao Carlos, Brazil, 2021. (cited by 1)
- [11] **J. Kaufman**, J. Brajer, L. Pína, and Tomáš Mocek, "Laser Shock Peening," in *EPIC Online Technology Meeting on Industrial Laser Manufacturing for Naval and Aeronautic Applications*, online, 2020.
- [12] **J. Kaufman**, M. Böhm, O. Stránský, S. Zulic, S. Pathak, J. Brajer, "Low-power Laser Peening without Coating to combat Stress Corrosion Cracking and Corrosion Fatigue in AA5083," in *XXIII International Symposium on High-Power Laser Systems and Applications*, Prague, Czech Republic, 2022.
- [13] M. Kattoura, **Jan Kaufman**, B.T. Donkor, J. Song, S.R. Mannava, and V.K. Vasudevan, "Effect of Laser Shock Peening Processing Parameters on the Microstructure, Residual Stress, and Fatigue Behavior of Additive Manufactured CoCrMo Alloy," in *ALT International Conference*, Prague, Czech Republic, 2019.
- [14] Z. Špirit, **J. Kaufman**, J. Brajer, J. Strejcius, and M. Chocholoušek, "Zvýšení únavové životnosti materiálu metodou Laser Shock Peening," in *Konference Srní VZU: Životnost komponent energetických zařízení*, Srní, Czech Republic, 2019.
- [15] **J. Kaufman**, V.K. Vasudevan, M.A. Steiner, S.R. Mannava, J. Brajer L. Pína, and Tomáš Mocek, "Influence of different laser systems on LSP treatment of Aluminum alloys," in *7th International Conference on Laser Peening and Related Phenomena*, Singapore, 2018.
- [16] **J. Kaufman**, M. Böhm J. Brajer, and Tomáš Mocek, "Development of LSP station in HiLASE laser center," in *6th International Conference on Laser Peening and Related Phenomena*, Pretoria, South African Republic, 2016.
- [17] Z. Špirit, **J. Kaufman**, J. Strejcius, M. Chocholoušek, and J. Kott. "Increase of the fatigue life of stainless steel by Laser Shock Peening," in *Annals of DAAAM & Proceedings 30*, 2019. (cited by 1)



## 2. Publications non-related to the doctoral thesis

### 2.1. Peer-reviewed

- [18] D. Margarone, I. J. Kim, J. Pšikal, **J. Kaufman**, T. Mocek, I.W. Choi et al., "Laser-driven high-energy proton beam with homogeneous spatial profile from a nanosphere target," *Physical Review Special Topics-Accelerators and Beams*, vol. 18, no. 7, 2015. (cited by 51)
- [19] D. Jochcová, **J. Kaufman**, P. Hauschwitz, J. Brajer, and J. Vanda, "Intensity distribution modulation of multiple beam interference pattern," *MM Science Journal*, 2019.
- [20] Klir, D., Shishlov, A. V., Jackson, S. L., Kokshenev, V. A., Kubes, P., Rezac, K., **J. Kaufman** et al., "Spatial distribution of ion emission in gas-puff z-pinches and dense plasma foci," *Plasma Physics and Controlled Fusion*, vol. 62, no. 3, 2020. (cited by 5)
- [21] Z. Špirit, J. Brajer, **J. Kaufman** et al., "Effect of Laser Shock Peening on Fatigue life of Austenitic stainless steels," *IOP Conference Series: Materials Science and Engineering*, vol. 461, no. 1, 2018. (cited by 2)
- [22] J. Prokůpek, **J. Kaufman**, D. Margarone, M. Krůs, A. Velyhan, J. Krása, T. Burris-Mog et al., "Development and first experimental tests of Faraday cup array," *Review of Scientific Instruments*, vol. 85, no. 1, 2014. (cited by 20)
- [23] J. Krása, D. Klír, K. Řezáč, J. Cikhart, M. Krůs, A. Velyhan, M. Pfeifer, ..., **J. Kaufman** et al., "Production of relativistic electrons, MeV deuterons and protons by sub-nanosecond terawatt laser," *Physics of Plasmas*, vol. 25, no. 11, 2018. (cited by 13)
- [23] D. Klir, A. V. Shishlov, V. A. Kokshenev, P. Kubes, K. Rezac, R. K. Cherdizov, ..., **J. Kaufman** et al., "Ion acceleration mechanism in mega-ampere gas-puff z-pinches," *New Journal of Physics*, vol. 20, no. 5, 2018. (cited by 27)
- [24] L. Giuffrida, K. Svensson, J. Psikal, M. Dalui, H. Ekerfelt, I. Gallardo Gonzalez, ..., **J. Kaufman** et al., "Manipulation of laser-accelerated proton beam profiles by nanostructured and microstructured targets," *Physical Review Accelerators and Beams*, vol. 20, no. 8, 2017. (cited by 15)
- [25] Giuffrida, L., K. Svensson, J. Psikal, D. Margarone, P. Lutoslawski, V. Scuderi, G. Milluzzo, **J. Kaufman** et al., "Nano and micro structured targets to modulate the spatial profile of laser driven proton beams," *Journal of Instrumentation*, vol. 12, no. 3, 2017. (cited by 8)

## 2.2. Non peer-reviewed

- [26] **J. Kaufman** et al., "Laser Shock Peening in the tooling industry," *Association of Industrial Laser Users magazine*, issue 104, 2022.

## 2.3. Conference contributions

- [27] K. Macúchová, J. Brajer, E. Černý, J. Heřmánek, **J. Kaufman**, M.G. Muresan, M. Řeháková, and T. Mocek, "Modular laser beam distribution system for the HiLASE Center," in *Optics and Measurement International Conference 2019*, vol. 11385, 2019.
- [28] J. Schmidt, K. Koláček, O. Frolov, V. Prukner, J. Straus, and **Jan Kaufman**, "Beam characteristics of CAPEX XUV argon laser," in *X-Ray Lasers and Coherent X-Ray Sources: Development and Applications X*, vol. 8849, pp. 210-216, SPIE, 2013. (cited by 1)
- [29] **J. Kaufman**, D. Margarone, G. Candiano, I.J. Kim, T.M. Jeong, J. Pšikal, F. Romano, P. Cirrone, V. Scuderi, and G. Korn, "Radiochromic film diagnostics for laser-driven ion beams," in *Research Using Extreme Light: Entering New Frontiers with Petawatt-Class Lasers II*, vol. 9515, pp. 174-181. SPIE, 2015. (cited by 4)
- [30] J. Vanda, J. Brajer, M.G. Muresan, **J. Kaufman**, and T. Mocek, "Importance of Laser Induced Damage Threshold for Laser Applications," In *Laser Applications Conference*, pp. CM2C-1, Optical Society of America, 2019.

## 3. Patents

- [31] S. Pathak, **J. Kaufman**, M. Böhm, J. Brajer, S. Zulic, O. Stránský, D. Rostohar, J. Radhakrishnan, "Improving Quality of Meso-Sized Cylindrical Gears by Laser Shock Peening," EU Patent (number to be filled in), filed May, 2022.
- [32] J. Strejcius, **J. Kaufman**, Z. Spirit, J. Brajer and P. Hauschwitz, "A method for extending fatigue life of a turbine blade affected by pitting and product thereof," EU Patent EP21206204, filed Nov 3, 2022.

#### **4. Project involvement**

- LM2015086 – HiLASE: New lasers for industry and research (2016-2019, MSM / LM) – supported by Ministry of Education, Youth and Sports
- CZ.02.1.01/0.0/0.0/15\_006/0000674 – HiLASE Centre of Excellence (2017-2022) – supported by Ministry of Education, Youth and Sports, Operational Programme Research, Development and Education
- 739573 – European Union’s Horizon 2020 research and innovation programme (2017-2023) – supported by Teaming of excellent research institutions and low performing RDI regions
- TN01000038 – project National Competence Center MATCA (2019-2022) - supported by Technology Agency of the Czech Republic
- TM01000015 - Development and Optimisation of Laser-Based Additive, Subtractive and Transformative Platforms for the Tooling Industry (2020-2022) – supported by Technology Agency of the Czech Republic

Since January 2020, the author leads the Laser Shock Peening group at HiLASE.