PAVEL PLESKUNOV

Researcher

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⭘ pleskunov   📍 Prague, CZ

EXPERIENCE

Postdoctoral Researcher
Charles University

📅 Jan 2021 – Present   📍 Prague, Czech Republic

- Conduct research on functional nanomaterials with tunable optoelectronical properties and explore thermally-driven physicochemical phenomena at nanoscale in metals, alloys, and metal oxides/nitrides.
- Study nanostructuring processes at surfaces/interfaces by scanning electron microscopy.

Postdoctoral Researcher
Christian-Albrechts-Universität zu Kiel

📅 Oct – Dec 2022   📍 Kiel, Germany

- Characterized thin-film broadband absorbers using optical diagnostic techniques (e.g. spectroscopic ellipsometry) and investigated the impact of their optical properties on photothermal heat generation.

Postdoctoral Researcher
ELI Beamlines - International Laser Research Centre

📅 Oct 2020 – Jan 2021   📍 Dolní Břežany, Czech Republic

- I was a part of the material engineering team and worked on design and implementation of a pipeline of PVD techniques for synthesizing nanostructured composite targets (polymer/metal/B/BN) for laser-driven proton-boron fusion. I also collaborated with a team of laser experts to characterize and test the assembled targets.

Trainee
Christian-Albrechts-Universität zu Kiel

📅 Oct - Dec 2019   📍 Kiel, Germany

- Fabricated nanostructured PEC photoanodes by sputtering and cluster beam deposition and studied the influence of processing parameters on their structure, composition and performance.

Trainee
Deutsche Elektronen-Synchrotron

📅 Nov 2017   📍 Hamburg, Germany

- I was a member of the team that conducted research on nanocluster growth and transport in the gas phase using Small-Angle X-ray Scattering.

EDUCATION

Ph.D. in Physics
Charles University

📅 2016 - 2020   📍 Czech Republic

M.Sc. in Electronic and microelectronic engineering
ISUCT

📅 2014 – 2016   📍 Russia

TECH STACK

`Magnetron sputtering` `PECVD` `Cluster beam deposition`

`SEM & EDX` `TEM` `XPS` `XRD` `SAXS` `Spectroscopic Elipsometry` `UV-Vis`

`C/C++` `Python` `Matlab` `Latex` `Origin` `CasaXPS` `CompleteEASE` `Ansys Lumerical` `Autodesk Inventor` `MS Office` `Windows` `Linux` `BSD`

SOFT SKILLS

Analytical mindset
Proficient in data gathering, systematization, and analysis.

Time management
Able to prioritize tasks and adapt quickly to a dynamic environment.

Teaching & Supervision
Designed and instruct the electron microscopy course.

Communication
Multilingual proficiency.

PUBLICATIONS

📄 Journal Articles

- P. Pleskunov, M. Protsak, Z. Krtouš, *et al.*, "Refractory plasmonics of reactively sputtered hafnium nitride nanoparticles: Pushing limits," *Advanced Optical Materials*, under revision 2024.

- K. Biliak, M. Protsak, P. Pleskunov, *et al.*, "Plasmonic tin, zrn, and hfn nanofluids for solar-to-heat conversion," *ACS Applied Nano Materials*, vol. 6, 23 2023.

- D. Nikitin, K. Biliak, P. Pleskunov, *et al.*, "Resistive switching effect in ag-poly(ethylene glycol) nanofluids: Novel avenue toward neuromorphic materials," *Advanced Functional Materials*, 202310473 2023.

- P. Pleskunov, T. Košutová, M. Protsak, *et al.*, "A multi-timescale model predicts the spherical-to-cubic morphology crossover of magnetron-sputtered niobium nanoparticles," *Applied Surface Science*, vol. 639, 158235 2023.

- A. L. M. Sandhya, P. Pleskunov, M. Bogar, *et al.*, "Tuning the morphology of sputter-deposited platinum catalyst: From compact layers to dispersed nanoparticles," *Surfaces and Interfaces*, vol. 40, 103079 2023.

- T. Košutová, L. Horák, P. Pleskunov, *et al.*, "Thermally-driven morphogenesis of niobium nanoparticles as witnessed by in-situ x-ray scattering," *Materials Chemistry and Physics*, vol. 277, 125466 2022.

- P. Pleskunov, V. Prysiazhnyi, D. Nikitin, *et al.*, "Magnetron-sputtered niobium nanoparticles for molecular imaging of brain tissues through surface-assisted laser desorption/ionization mass spectrometry," *ACS Applied Nano Materials*, vol. 5, 9 2022.

- P. Pleskunov, T. Košutová, M. Vaidulych, *et al.*, "The sputter-based synthesis of tantalum oxynitride nanoparticles with architecture and bandgap controlled by design," *Applied Surface Science*, vol. 559, 149974 2021.

- M. Vaidulych, P. Pleskunov, J. Kratochvíl, *et al.*, "Convex vs concave surface nano-curvature of ta2o5 thin films for tailoring the osteoblast adhesion," *Surface and Coatings Technology*, vol. 393, 125805 2020.

- A. Shelemin, P. Pleskunov, J. Kousal, *et al.*, "Nucleation and growth of magnetron-sputtered ag nanoparticles as witnessed by time-resolved small angle x-ray scattering," *Particle & Particle Systems Characterization*, vol. 37, 2 2019.

CONFERENCES

18th International Conference on Plasma Surface Engineering

📅 September, 2022   📍 Erfurt, Germany

10th International Workshop on Functional Nanocomposites

📅 September, 2021   📍 Varese, Italy

5th German-Czech Workshop on Nanomaterials

📅 January, 2021   📍 Dresden, Germany

9th International Workshop on Polymer-Metal NanoComposites

📅 July, 2019   📍 Espoo, Finland

24th International Symposium on Plasma Chemistry

📅 June, 2019   📍 Naples, Italy

MRS Spring Meeting & Exhibit

📅 April, 2018   📍 Phoenix, United States

LANGUAGES

English
Czech
Russian

STRENGTHS

Hard-working   Motivator & Leader

Persuasive