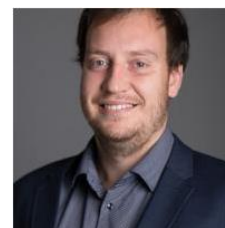


Jaroslav Čapek

Year of birth 1985
Employer Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic
E-mail/phone +420 266 052 604
Researcher ID AAO-1707-2020



PROFESSIONAL INTERESTS / RESEARCH EXPERTISE

Biodegradable metallic materials (Zn-, Mg- and Fe-based), Processing-microstructure-mechanical behaviour relationships, Metal-matrix composites with metastable phase composition, Microstructure evolution during advanced metallurgical processes (3D print, severe plastic deformation, mechanical alloying).

LEADERSHIP EXPERIENCE

Principal investigator of two national grant projects (Czech science foundation – GAČR). Principal investigator of two university grant projects intended for Ph.D. students (University of Chemistry and Technology).

EDUCATION

2016 Finishing Ph.D. studies (Ph.D. title, University of Chemistry and Technology)
2010 Finishing master studies (Ing. title, University of Chemistry and Technology)
2008 Finishing bachelor studies (Bc. title, University of Chemistry and Technology)

PROFESIONAL EXPERIENCE (including INTERNATIONAL EXPERIENCE)

Since 2016 Institute of Physics of the Czech Academy of Sciences, full-time job (since 2014 Research and Development Specialist; since 2017 Postdoctoral fellow, since 2021 Scientist, since 2023 Senior scientist)
Since 2011 Research and Development employer at the Department of Metals and Corrosion Engineering, University of Chemistry and Technology Prague, part-time job, several pauses
2022 Visiting scientist (half-year internship, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany)
2015 Institute of Materials Research of the Slovak Academy of Sciences, one-week workshop on the microstructural characterization of metallic materials

PUBLICATION ACTIVITIES

Author of 77 peer reviewed papers published in international journals and conference proceedings. Those papers are more than 1100 times cited.

***h*-index of 18 (WOS)**

Selected 5 most important papers:

- 1 Čapek J., Machová M., Fousová M., Kubásek J., Vojtěch D., Fojt J., Jablonská E., Lipov J. and Ruml T., Highly porous, low elastic modulus 316l stainless steel scaffold prepared by selective laser melting, Materials Science & Engineering C-Materials for Biological Applications 2016, 69, pp. 631-639

- 2 Čapek J., Msallamová Š., Jablonská E., Lipov J. and Vojtěch D., A novel highstrength and highly corrosive biodegradable Fe-Pd alloy: Structural, mechanical and in vitro corrosion and cytotoxicity study, *Materials Science & Engineering C-Materials for Biological Applications* 2017, 79, pp. 550-562
- 3 Čapek J., Jablonská E., Lipov J., Kubatík T. F. and Vojtěch D., Preparation and characterization of porous zinc prepared by spark plasma sintering as a material for biodegradable scaffolds, *Materials Chemistry and Physics* 2018, 203, 249-258
- 4 Průša F., Cabibbo M., Šenková A., Kučera V., Veselka Z., Školáková A., Vojtěch D., Cibulková J. and Čapek J., High-strength ultrafine-grained CoCrFeNiNb high-entropy alloy prepared by mechanical alloying: Properties and strengthening mechanism, *Journal of Alloys and Compounds* 2020, 835, article no. 155308
- 5 Čapek J., Kubásek J., Pinc J., Fojt J., Krajewski S., Rupp F., Li. P., Microstructural, mechanical, in vitro corrosion and biological characterization of an extruded Zn-0.8Mg-0.2Sr (wt%) as as absorbable material, *Materials Science & Engineering C-Materials for Biological Applications* 2021, 122, article no. 111924

APPLICATION RESULTS

RESEARCH GRANTS

2018 – 2021	Biodegradable zinc based alloys with optimized corrosion, mechanical and biological properties Principal Investigator.	Czech Science Foundation – standard grant project
2023 – 2025	Influence of surface modifications on the functionality of zinc-based absorbable materials for applications in bone reconstructions Principal Investigator	Czech Science Foundation – standard grant project

INVITED TALKS AT INTERNATIONAL CONFERENCES

Regular seminars at universities and research institutions and invited talks at international conferences:

- 1 18. – 20. 5. 2022 - Zn-based biodegradable alloys – their prospects in implantology, 1st Annual ESBI Conference, Krems, Austria
- 2 3. 12. 2021 – 22nd International Conference and Exhibition on Materials Science and Engineering, keynote presentation: Zn-based biodegradable materials: Their prospects for application in orthopaedics
- 3 27. 10. 2021 – Webinar on Materials Science & Engineering, keynote presentation: Zinc based materials as perspective candidates for fabrication of biodegradable implants
- 4 14. 9. 2022 – Zn-based biodegradable materials for implantology – importance of the atom probe tomography in their development, Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Germany
- 5 20. 11. 2018 – Zinc based materials as potential candidates for biodegradable implants, School of Mechanical, Materials, Mechatronic and Biomedical Engineering, University of Wollongong, New South Wells, Australia

AWARDS and FELLOWSHIPS

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| 2019 | Support for perspective postdoctoral human resources (PPLZ) – an award of the Czech Academy of Sciences for perspective postdoctoral fellows |
| 2019 | Otto Wichterle Award 2019 – an award of the Czech Academy of Sciences for young scientists (up to 35 years old) |

TEACHING ACTIVITIES AND SUPERVISION OF STUDENTS

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|-------------|--|
| Since 2016 | Supervisor of two bachelor and tutor of two master theses, Department of Metals and Corrosion engineering, University of Chemistry and Technology Prague. All successfully defended. |
| 2017 - 2022 | Supervisor specialist of one Ph.D. thesis, Department of Metals and Corrosion engineering, University of Chemistry and Technology Prague. Successfully defended. |

COMMISSIONS OF TRUST AND SERVING SCIENTIFIC COMMUNITY

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| Journal reviewer | Materials Science and Engineering C, Materials Characterization, Metals, Journal of Alloys and Compounds, Journal of Materials and Environmental Science, Materials Letters, Transactions of Nonferrous Metals Society of China, etc. |
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