PERSONAL INFORMATION

Daniel Koutny

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Sex Male | Date of birth 27/05/1978 | Nationality/ CZ

WORK EXPERIENCE

Since 8/2020 — **Head of department**
Department of Reverse eEngineering and Additive Technologies, IMID, FME BUT

Since 2019 — **Deputy director**
Institute of Machine and Industrial Design, FME BUT

2011 – 2018 — **Secretary of Education**
Institute of Machine and Industrial Design, FME BUT

2011 – 2014 — **Head of section Design and Development**
NETME centre Division of Virtual Modeling, Design and Testing

2008 – 2016 — **Senior Lecturer**
Institute of Machine and Industrial Design, FME BUT

2005 – 2008 — **Lecturer**
Institute of Machine and Industrial Design, FME BUT

EDUCATION AND TRAINING

2016 — **Associate professor**
Faculty of Mechanical Engineering, Brno University of Technology, Design and Process Engineering

2008 — **Ph.D.**
Faculty of Mechanical Engineering, Brno University of Technology, Design and Process Engineering

2002 — **MSc.**
Faculty of Mechanical Engineering, Brno University of Technology, Applied mechanics

EXPERTISE

- Since 2012 - Additive Manufacturing of metal materials, Selective Laser Melting
- Since 2007 - 3D optical digitization and measurement.
- Since 2006 - Rapid prototyping and additive technologies
- 2002-2008 - Experimental study of lubrication between conformal and non-conformal surfaces, traction measurement, behaviour of water contaminated lubricant.

PROJECTS

Basic research

- Research of Magnesium Alloys for Additive Manufacturing of Structural and Biocompatible Parts, ATCZ229 – ReMaP (2020-2022). INTERREG V-A Austria - Czech Republic.
- GACR 15-23274S (2015-2017) Design of advanced materials using selective laser melting, co-investigator.

Applied research

- TN01000029 (2017-2020) National Competence Centre for Aeronautics and Space, investigator of subproject.
- TAČR TH03010172 (2017-2020) Research and development of 3D printers for use in construction industry, co-investigator.
- MPO FV20232 (2017-2019) Biodegradable structured implants fabricated by 3D metal printing method, co-investigator.
- TAČR TH02010514 (2017-2019) Development of 3D printing for selected materials and topology optimization of components for aerospace industry, co-investigator.
- MPO FV10411 (2016-2018) Research and development of electric drive of mini-excavator up to 2 tons, co-investigator.
- ESA Contract (2014-2015) Design of spacecraft components for additive manufacturing (no.4000109548/13/NL/MV), investigator (subcontractor).
- EUREKA LF12029 (2012-2014) Regenerative hydrostatic module for commercial vehicles, co-investigator.
- MPO FR-TI3/388 (2011-2013) The application of digital technologies for the design, manufacture and evaluation of custom orthotic and prosthetic devices, co-investigator.
- MPO FR-TI3/699 (2011-2012) Disc filters for wastewater treatment plants, co-investigator.

Educational

- FRVŠ 1489/2013 (2013) Innovation of Reverse Engineering and optical digitizing, investigator.
- FRVŠ 2621/2011 (2011) Course innovation using project oriented education with a practical output), co-investigator.
- FRVŠ 765/2010 (2011) Student workplace for model creation and finalization of design projects, co-investigator.
- FRVŠ 206/2009 (2009) Student workshop for the production of plastic prototypes (), co-investigator.
- ESF CZ 04.1.03/3.2.15.2/0285 - Innovation of Mechanical Engineering Study Programmes in the Context of information Society
- ESF CZ.04.1.03/3.3.11.1./2641 - Training of tutors, consultants and teachers of further professional education in the area of digital design.

EDUCATIONAL ACTIVITIES

Teaching in the Bachelor's programme

- Machine Design Fundamentals (1K), Machine Design (2K)

Teaching in the Master's programme

- Additive technologies (ZAT),Parametric modelling - Inventor, Catia, Rhinoceros (ZM1), Plastic prototypes (ZPP), Project management (ZRS), CAD Systems (RS2), Design project (ZIP), Engineering project (ZKR), Reverse Engineering and Optical Digitalisation (ZRI-A)

Supervision of theses

- 28 Bachelor theses
- 31 Master theses

SCIENTOMETRIC INDICATORS

Publications

15 articles in IF journals
12 articles in scientific journals without IF
10 proceeding articles (World or European congress)
8 proceeding articles (international congresses, symposia and conferences)

International citations

183 citations in Science Citation Index (WoS)
232 citations in SCOPUS
H-index: 6 (WoS), 8 (SCOPUS)

Selected applied results

- 2019, Solenoid housing optimized for additive manufacturing, RIV/00216305:26210/19:PR32666. Prototype.
- 2017, Skeleton core made of rods of ferromagnetic material, RIV/00216305:26210/18:PA21505. Patent no. 307249.
- 2014, Bracket for fixation of satellite antenna, RIV/00216305:26210/14:PR28051, G/B – Utility model.
- 2015 3D printer for materials of higher strength, RIV/00216305:26210/15:PR28278, G/B - Utility model.
- 2015 Heat exchanger made by metal 3D printing, RIV/00216305:26210/15:PR28595, G/B - Utility model.
- 2014 Augmentation component for knee joint revision implant, RIV/00216305:26210/14:PR27716, G/B - Utility model.

Selected publications

- MONTUFAR JIMENEZ, E.; TKACHENKO, S.; CASAS LUNA, M.; ŠKARVADA, P.; SLÁMEČKA, K.; DÍAZ DE LA TORRE, S.; KOUTNÝ, D.; PALOUŠEK, D.; KOLEDOVÁ, Z.; HERNÁNDEZ-TAPIA, L.; ZIKMUND, T.; ČELKO, L.; KAISER, J. Benchmarking of additive manufacturing technologies for commercially-pure-titanium bone-tissue-engineering scaffolds: processing-microstructure-property relationship. ***Additive Manufacturing*** 2020, vol. 36, no. 101516, p. 1-13. ISSN: 2214-8604. DOI: 10.1016/j.addma.2020.101516.
- SUCHÝ, J.; PANTĚLEJEV, L.; PALOUŠEK, D.; KOUTNÝ, D.; KAISER, J. Processing of AlSi9Cu3 alloy by selective laser melting. ***Powder Metallurgy*** 2020, vol. 63, no. 3, p. 197-211. ISSN: 0032-5899. DOI: 10.1080/00325899.2020.1792675.
- SUCHY, J.; HORYNOVA, M.; KLAKURKOVÁ, L.; PALOUSEK, D.; KOUTNY, D.; CELKO, L. Effect of Laser Parameters on Processing of Biodegradable Magnesium Alloy WE43 via Selective Laser Melting Method. ***Materials*** 2020, 13, 2623. ISSN 1996-1944.
- MALÝ, M.; HÖLLER, C.; SKALON, M.; MEIER, B.; KOUTNÝ, D.; PICHLER, R.; SOMMITSCH, C.; PALOUŠEK, D. Effect of Process Parameters and High-Temperature Preheating on Residual Stress and Relative Density of Ti6Al4V Processed by Selective Laser Melting. ***Materials*** 2019, 12(6), 930. ISSN 1996-1944. DOI:10.3390/ma12060930.
- VAVERKA, Ondřej, Daniel KOUTNY a David PALOUSEK. Topologically optimized axle carrier for Formula Student produced by selective laser melting. ***Rapid Prototyping Journal***. 2019, 25(9), 1545-1551. ISSN 1355-2546. DOI: 10.1108/RPJ-07-2018-0171.
- KOUTNY, D., D. PALOUSEK, L. PANTELEJEV, C. HOELLER, R. PICHLER, L. TESICKY a J. KAISER. Influence of scanning strategies on processing of aluminum alloy EN AW 2618 using selective laser melting. ***Materials***. 2018, 11(2). ISSN 1996-1944. DOI:10.3390/ma11020298.
- VRÁNA, R., D. KOUTNÝ, D. PALOUŠEK, L. PANTĚLEJEV, J. JAROŠ, T. ZIKMUND a J. KAISER. Selective laser melting strategy for fabrication of thin struts usable in lattice structures. ***Materials*** 2018, 11(9). ISSN 1996-1944. DOI: 10.3390/ma11091763.
- PALOUSEK, David, Martin KOCICA, Libor PANTELEJEV, Lenka KLAKURKOVA, Ladislav CELKO, Daniel KOUTNY a Jozef KAISER. SLM process parameters development of Cu-alloy Cu7.2Ni1.8Si1Cr. ***Rapid Prototyping Journal*** 2017, 25 (2), pp. 266-276. ISSN 1355-2546. DOI: 10.1108/RPJ-06-2017-0116.
- VRÁNA, Radek, Ondřej ČERVINEK, Pavel MAŇAS, Daniel KOUTNÝ a David PALOUŠEK. Dynamic Loading of Lattice Structure Made by Selective Laser Melting-Numerical Model with Substitution of Geometrical Imperfections. ***Materials*** 2018, 11(11). ISSN 1996-1944. DOI: 10.3390/ma11112129.
- PALOUŠEK, D.; OMASTA, M.; KOUTNÝ, D.; BEDNÁŘ, J.; DOKOUPIL, F.; KOUTECKÝ, T. Effect of matte coating on 3D optical measurement accuracy. ***Optical Materials***. 2015. 40(1). p. 1 - 9. ISSN 0925-3467.