

INTRODUCTION OF THE FIRST YEAR Ph.D. STUDENT

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ÚSTAV KONSTRUOVÁNÍ
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VUT v Brně

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ÚSTAV
KONSTRUOVÁNÍ



MY HOME VILLAGE



Area: 26,4 km²
Founded in: 1396
Population: 1 032

MY HOME VILLAGE



Bike Fest

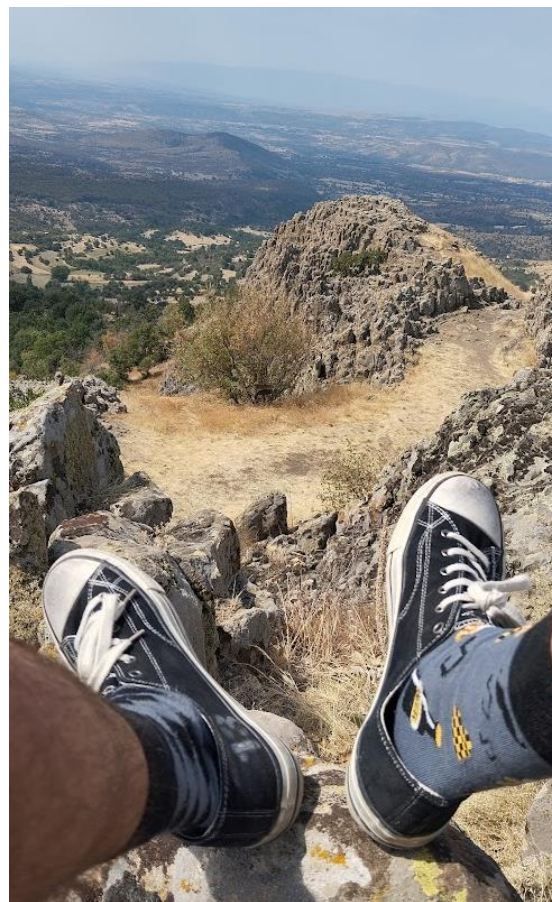
HOBBIES



Enduro & Downhill



Volleyball



Hiking



Tabletop Games



Fantasy & Sci-fi Book Reading

WORK EXPERIENCE



Part time jobs

- FORVIA – Kočovce (2017-2024)
Headlamp MEP supporting



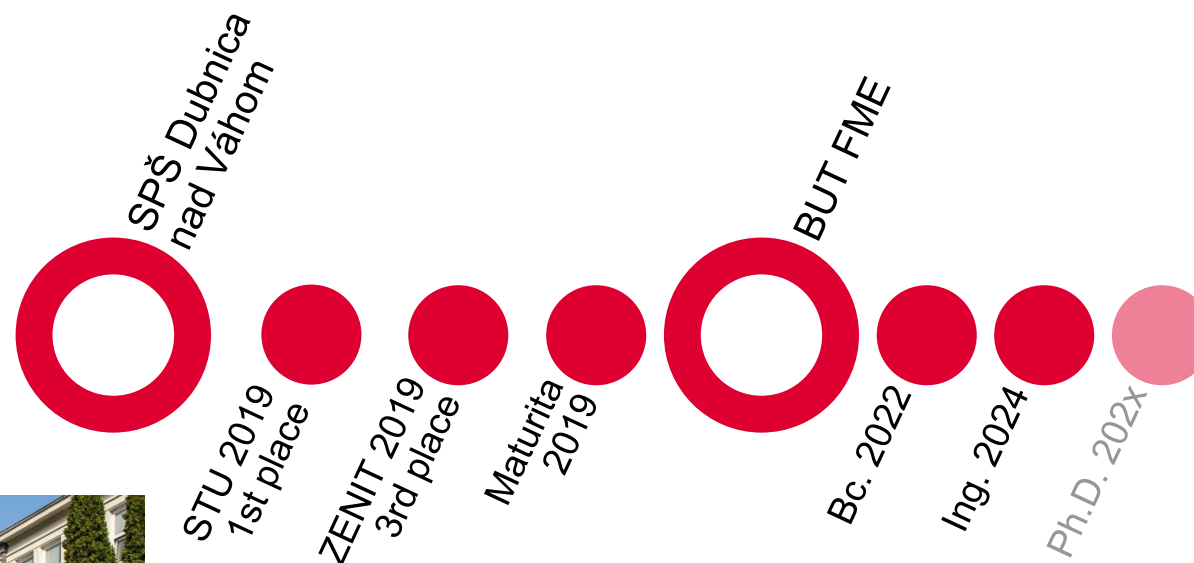
- RIAT BUT – Brno (2023-2024)
Research assistant – 3D scanning, SLM processing and postprocessing support

Internships

- BOGE Elastmetal – Trnava (2018)
- Adient – Trenčín (2023)



EDUCATION



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Modification of crystallographic texture of austenitic steel by 3D printing

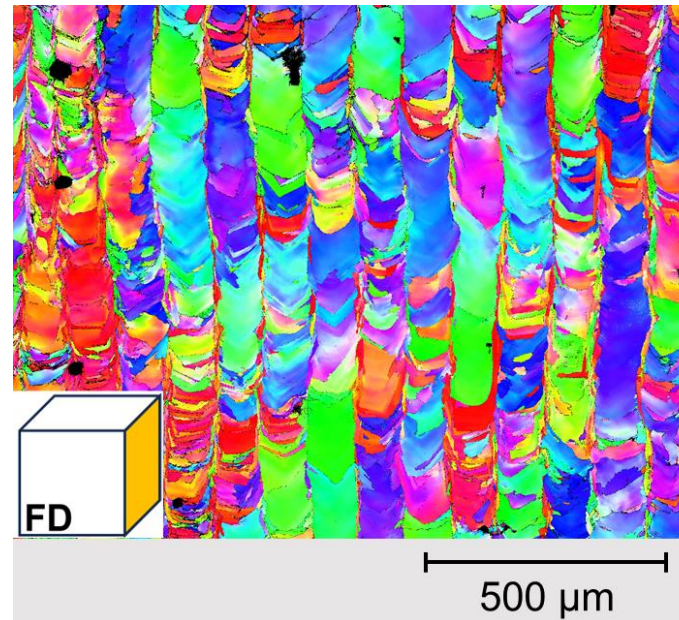
- Supervisor: doc. Ing. Daniel Koutný Ph.D.

High Manganese Steel X30Mn22

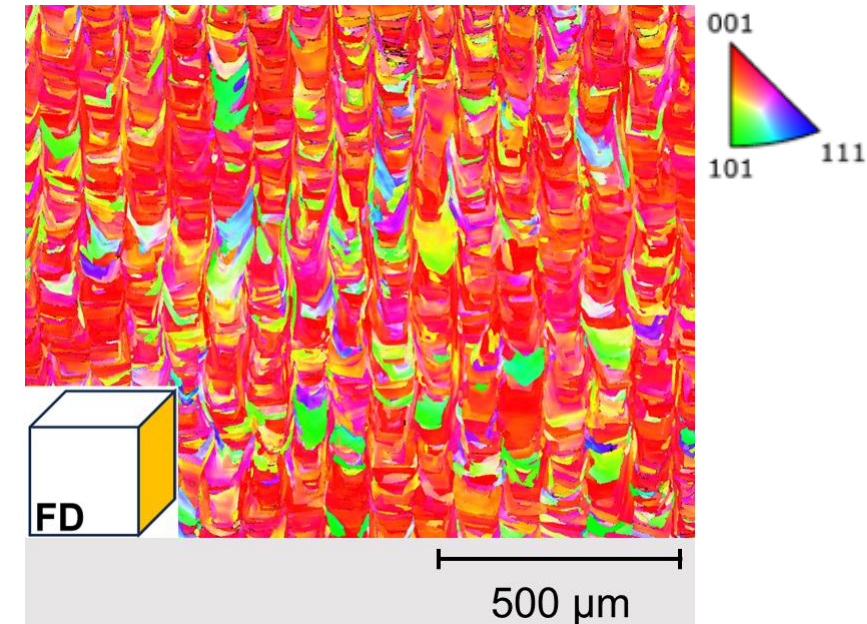
LE (J/mm)		LS (mm/s)					
LP (W)		100	200	300	400	500	600
	100	1,00	0,50	0,33	0,25	0,20	0,17
	150	1,50	0,75	0,50	0,38	0,30	0,25
	200	2,00	1,00	0,67	0,50	0,40	0,33
	250	2,50	1,25	0,83	0,63	0,50	0,42
	300	3,50	1,50	1,00	0,75	0,60	0,50
	350	3,50	1,75	1,17	0,88	0,70	0,58
	400	4,00	2,00	1,33	1,00	0,80	0,67
	450	4,50	2,25	1,50	1,13	0,90	0,75



Vzorka VS_4

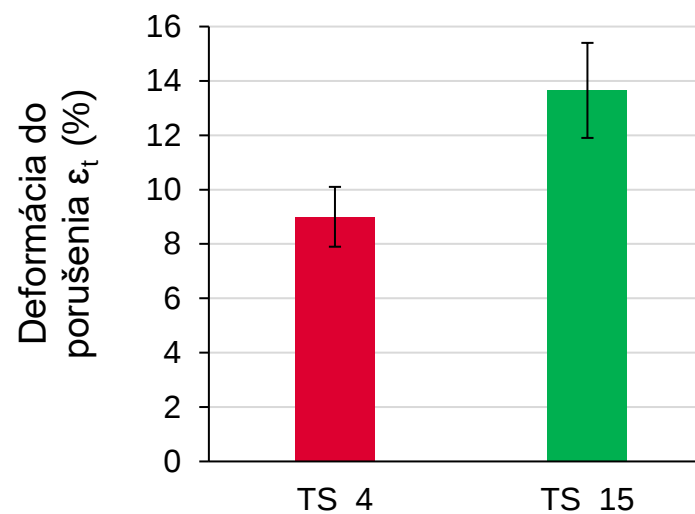
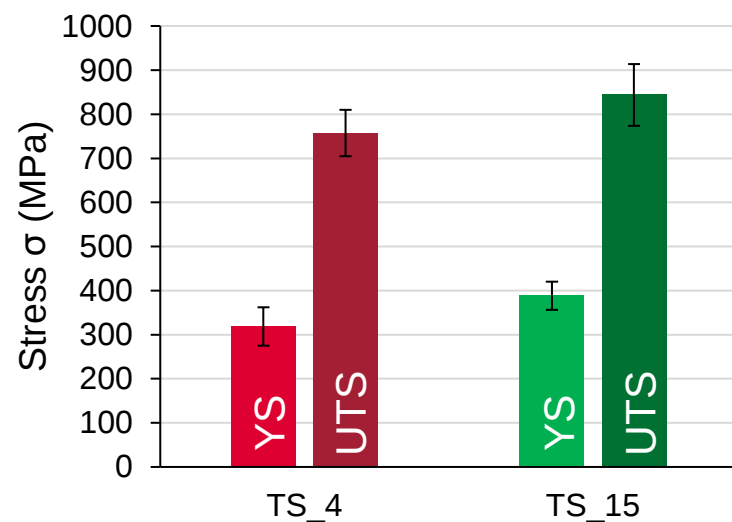


Vzorka VS_15



Modification of crystallographic texture of austenitic steel by 3D printing

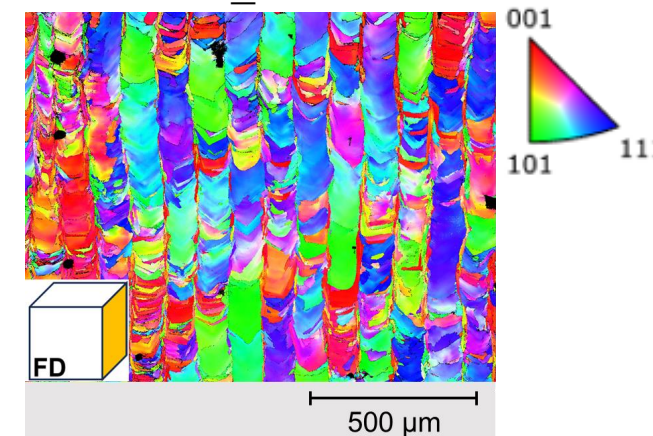
- Supervisor: doc. Ing. Daniel Koutný Ph.D.



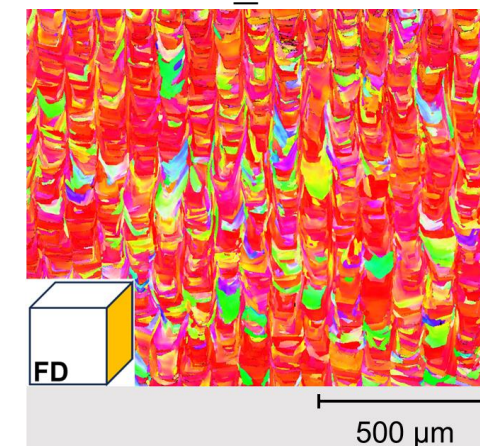
Contribution to the conference

- Austenitic steel modification by laser-related process parameters*

Vzorka VS_4



Vzorka VS_15

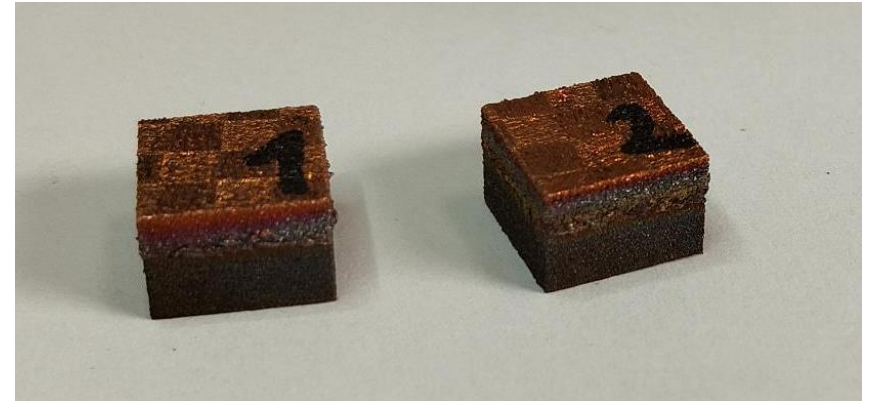


Multi-material 3D printing of spatially shaped interfaces

- Supervisor: doc. Ing. Daniel Koutný, Ph.D.
- Supervisor specialist: Ing. Martin Malý, Ph.D.

Connection of materials

- Maraging Steel + CuCr1Zr
- Combination of good strength and thermal properties
- Flat → Angled → Round interface



Properties to be detected

- Interface micro/macro-structure & chemical composition (porosity & defects)
- UTS, Bending stress, Shear Stress, Hardness

Ph.D. STUDENT ACTIVITIES



Teaching activities

- 3CD - CAD

Learning activities

- 9MOP – Methodologies of scientific work
- 9VPR – Research project and its management
- 9AJ – English for doctoral degree study
- 9SVK – Structure and properties of metallic materials
- 9PLE – Planning and Experiment
- TV-VOL – Volleyball

THANK YOU FOR YOUR ATTENTION

Adam Fábry

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www.ustavkonstruovani.cz