

FACULTY OF MECHANICAL ENGINEERING,
JANA EVANGELISTA PURKYNĚ UNIVERSITY IN ÚSTÍ NAD LABEM, CZ

OLYMPUS CZECH GROUP, S.R.O., THE MEMBER OF CONCERN

DEPARTMENT OF METALS AND CORROSION ENGINEERING, INSTITUTE OF CHEMICAL
TECHNOLOGY IN PRAGUE, CZ

UNIVERSITY OF WEST BOHEMIA – FACULTY OF MECHANICAL ENGINEERING
DEPARTMENT OF MATERIAL SCIENCE AND TECHNOLOGY,

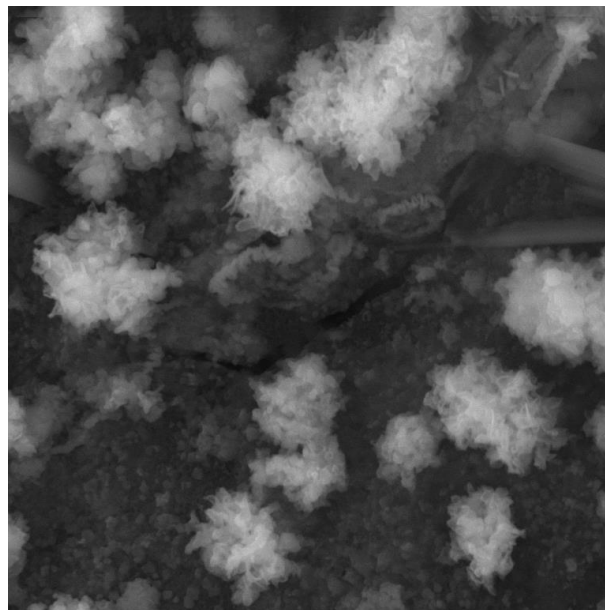
FACULTY OF MECHANICAL ENGINEERING, TECHNICAL UNIVERSITY IN LIBEREC, CZ

A

OTHER WORKPLACE MANUFACTURING TECHNOLOGY AND MATERIALS ENGINEERING
UNIVERSITIES AND INDUSTRY

Invite you to the 6th International Conference

MICROSCOPY AND NON-DESTRUCTIVE MATERIAL TESTING 2020



19. 10. – 22. 10. 2021

Castle hotel Hrubá Skála – Turnov

I. Circular Letter

<http://www.konference-fsi.cz/MicroNdt2020>

Venue of the conference

The original castle from the 14th century, which was later rebuilt into a Renaissance chateau, is located in the Český ráj, on a sandstone rock about 6 km southeast of Turnov above the village of Hrubá Skála.

Castle hotel Hrubá Skála

Hrubá Skála 1
 Turnov
 511 01

www.hrubaskala.cz

e-mail:

hrubaskala@eahotels.cz

tel.: +420 604 317 618



Objectives of the conference

MICROSCOPY AND NON-DESTRUCTIVE MATERIAL TESTING 2020 The conference is focused on the use of optical, laser and electron microscopy for materials research, optimization of material properties and analysis of relationships with production technologies. Conference approaches use these methods to solve production and technological problems and new trends and opportunities in these areas. In addition, the conference will deal with using non-destructive testing in the production process for testing and inspection of materials and the research approach and the possibility of using special techniques in practice and research (thermal imager, high-speed camera, x-ray equipment, ultrasound equipment and lines, etc.). The conference will be introduced to a variety of devices and equipment which can become familiar with their use, function, operation, etc.

The conference will also present a section dealing with the surface treatment of aluminum materials, specifically the topic of **new trends in nano and micro coating of aluminum alloys**.

The main goals and focus of the conference **MICROSCOPY AND NON-DESTRUCTIVE MATERIAL TESTING 2020** is to give a comprehensive overview of the current situation in these areas:

- use of microscopy, X-ray methods and non-destructive methods of research and solving technological problems,
- electron microscopy and its applications in science, research and optimization of material properties and manufacturing processes,
- nano and micro coating of aluminium alloys,
- new trends and equipment in the field of microscopy,

The Scientific Committee of the Conference

prof. Ing. Ivan Lukáč, PhD.
 TU in Košice, SK

prof. Ing. Václav Švorčík, DrSc.
 Department of solid state engineering,
 VŠCHT, Praha, CZ

prof. Dr. Ing. Dalibor Vojtěch
 Department of Metallic Materials and
 Corrosion Engineering, VŠCHT,
 Praha, CZ

prof. Ing. Dana Bolibruchová, PhD.
 Faculty of Mechanical Engineering of
 Žilina University, University of Žilina in
 Žilina, SK

prof. Stanislaw Legutko, D.Sc.
 Faculty of Mechanical Engineering and
 Management, University of Poznan,
 PL

prof. Ing. Iva Nová, Ph.D.
 Faculty of Mechanical Engineering,
 Technical University in Liberec, CZ

prof. Dr. Ing. Antonín Kříž
 Department of Material Science and
 Technology, FS ZČU, CZ

prof. Ing. Jozef Janovec, DrSc.
 Institute of Advanced Technology
 Research, Slovak University of
 Technology in Bratislava, SK

prof. Ing. Štefan Michna, PhD.
 Department Technology and Materials,
 FMI UJEP, Ústí nad Labem, CZ

prof. Ing. Miroslav Müller, Ph.D.
 Technical Faculty, Czech University of
 Life Sciences Prague, CZ

doc. Ing. Zdeňka Kolská, Ph.D.
 Ústí material center, FNS UJEP, Ústí
 nad Labem, CZ

doc. Ing. Alena Michalcová, Ph.D.
 Department of Metallic Materials and
 Corrosion Engineering, VŠCHT,
 Praha, CZ

doc. Ing. Nataša Náprstková, Ph.D.
 Department Technology and Materials,
 FMI UJEP, Ústí nad Labem, CZ

doc. Ing. Dana Stančková, Ph.D.
 Department of Machining and
 Manufacturing Technology, University
 of Žilina

doc. Ing. Miroslava Ťavodová, PhD.
 Faculty of Environmental and
 Manufacturing Technology, Technical
 University in Zvolen, SK

doc. Ing. Jarmila Trpčevská, Ph.D.
 TU in Košice, SK

Ing. Anna Rudawska Ph.D., D.Sc.
 Lublin University of Technology, PL

Ing. Alena Němečková
 OLYMPUS CZECH GROUP, S.R.O.,
 THE MEMBER OF CONCERN



6th International Conference Microscopy and Non-destructive Material Testing Czech Republic

- optical and laser microscopy and their applications (science, research, applications, optimization of manufacturing processes),
- fractography and its use as a forensic science,
- use of X-ray methods in solving technological and design problems, non-destructive testing (devices, applications in science, research and industry).



Accompanying events

- exhibition and presentation of companies
- competition "**The best material structure photography**"
- competition for "**The best Ph.D. presentation**"
- a visit to the Sychrov chateau



Conference language and publication

The conference languages are *Czech, Slovak, Polish, English*.

Papers must be submitted in English (GB English) for publication in the journal *Manufacturing Technology*, which is included in the world citation database SCOPUS.



Obligatory application and submission of contributions

Annotation of papers of up to 100 words with a binding application must be sent in electronic form to the conference secretariat (jaroslava.svobodova@ujep.cz) no later than **30. 10. 2021**.

Participation Fee

Participation Fee: **200 EUR per person with VAT**.

Participation fee includes: Conference fee, conference room rental, technical equipment, refreshments, social events etc.

Publication fee is not included in the participation fee.

Form of payment only by invoice.

Accommodation is paid by each participant individually and it is done after arrival at the point of the conference. The Organizing Committee will only provide accommodation reservation.

Conference organizing committee

prof. Ing. Štefan Michna, PhD.,
FME, UJEP, Ústí nad Labem, ČR

doc. Ing. Nataša Náprstková,
Ph.D.,
FME, UJEP, Ústí nad Labem, ČR

Ing. Jaroslava Svobodová, Ph.D.
FME, UJEP, Ústí nad Labem, ČR

Ing. Elena Střihavková, Ph.D.
FME, UJEP, Ústí nad Labem, ČR

PhDr. Jan Novotný, Ph.D.
FME, UJEP, Ústí nad Labem, ČR

Ing. Irena Lysoňková,
FME, UJEP, Ústí nad Labem, ČR

Ing. Lenka Michnová,
FME, UJEP, Ústí nad Labem, ČR

Ing. Petr Majrich, Ph.D.,
FSI, UJEP, Ústí nad Labem, ČR

Ing. Martin Jaskevič,
FSI, UJEP, Ústí nad Labem, ČR

Mgr. Iryna Hren,
FSI, UJEP, Ústí nad Labem, ČR



Important!!!!!!

The publishing of the article in the journal is subjected to fulfilling the requirements for writing the articles: delivery of a contract for the transfer of copyrights to the paper and a review process resulting in the publication of the article for publication.

Journal Manufacturing Technology (ISSN 1213-2489) - MT

For articles **in English**, which the author presents the magazine Manufacturing Technology (ISSN 1213-2489) is used **exclusively MTA web portal** for posting to this journal, see the link below.

<http://journal.strojirenskatechnologie.cz/portal/>

If the author is not registered on the portal MTA must first register, i.e. complete all the required information and submit the form. Subsequently receive e-mail with a link to confirm your registration, thereby activating their personal page. On this page you will have the option to post articles (not just for this conference), and track the status of your article.

For conference Microscopy and Non-destructive Material Testing 2020 when inserting article, please select the "Type of article" the "**NDT conference article**" to assign your article just to this event. Formal requirements for writing articles (template) + contract for the transfer of copyright are introduced in the system of internet application.

The publication in the MT magazine is within the Microscopy and NDT conference with an extra charge of 120 EUR with VAT.

The full text of the papers will be accepted only until 30. 8. 2021

After receiving the article for publication (successful review process), the author of the article will be sent an invoice to pay the publication fee. Within the reduced (conference) publication fee (120 € with VAT MT) **one article of each author** will be published, each additional article will be invoiced at full rate, ie 180 € with VAT - MT.

Articles that do not undergo review will not be published.

The reduced fee for the publication fee is subject to attendance at the conference.

In case of posting after August 30, 2019, the author is aware that the article will not be published in the designated Manufacturing Technology number for this conference or in the following issue. If you are interested in posting a post, they must pay the full publishing rate, ie € 180 with VAT.

Framework Program

Detailed timetable for the conference with precise timing arrangement of individual contributions and the lectures will be distributed in III. Circular Letter to 12. 10. 2020.

19. 10. 2021	Registration of conference participants	13:00 – 15:00
	Lunch	13:00 – 14:00
	1. Session of the conference – Ph.D. session	14:00 – 17:00
	<i>Competition for the best Ph.D. presentation</i>	
	prof. Š. Michna speech:	17:00 – 18:00
	<i>Current trends in nano and micro coating</i>	
	Dinner	18:00 – 19:00



20. 10. 2021	Registration of conference participants	08:00 – 10:00
	Opening of the conference	08:30 – 08:45
	1. Session of the conference	08:45 – 11:45
	Lunch	11:45 – 12:45
	2. Session of the conference	12:45 – 14:00
	<i>Visit to the Hrubý Rohozec chateau or tourist march to Valdštejn Castle with a tour and refreshments at the castle.</i>	15:00 – 19:00
	Dinner	19:30
21. 10. 2021	3. Session of the conference	08:30 – 13:00
	Lunch	13:00 – 14:00
	4. Session of the conference	14:00 – 16:30
	Closing of the second day of the conference	16:30 – 16:40
	Negotiations of the Journal's editorial board	17:30 – 18:30
	Social evening program	19:00

*During the first and second day will also run a competition for "**The most beautiful material structure picture**"*

The "Best Picture of the Material Structure" Competition

Competition will be held in two categories namely in the field of colour photography and in the field of black and white photography. Each participant may submit max. 3 colour and 3 black and white photographs of material structure (it is possible to participate in only one of these categories). Photos can be in size max. A4. Each photograph is then needed to describe: zoom, 1 - 2 sentence description of the structure, method of etching and observation.

Photos will be posted during the first day of the conference and will be evaluated by the Competition Commission and the participants (Vox Populi). The winners will be awarded with prizes. Awards will be presented at the social evening of the conference. **Photo images should be sent no later than 10. 10. 2021 to the contact address.**

It is also possible to bring the photo in advance, by prior arrangement and sending the necessary information in advance, by e-mail, to the conference venue. The photo must be handed over on the first day of the conference no later than the next morning to be posted and can be judged fairly.

Important dates

till 30. 8. 2021 Sending an **obligatory application and abstract**

till 15. 9. 2021 Sending of the **II. Circular Letter**



- till **30. 8. 2021** Deadline for sending articles - **the full text of the article and advertisement** in the journal
- till **30. 9. 2021** **Registration fee** (charge for advertising and conference separate space)
- till **10. 10. 2021** Sending III. Circular Letter - **the final conference program**
- till **10. 10. 2021** **Sending photos** (max. 6 units in total) in the contest "Best picture material structure"
- 19. – 22. 10. 2021** **Conference venue**

Contact

- Ing. **Jaroslava Svobodová**, Ph.D.
e-mail: jaroslava.svobodova@ujep.cz
tel.: 00420 475 285 550
- **DTM FME UJEP**
Pasteurova 3334/7
400 96 Ústí nad Labem, Czech Republic

Conference venue and accommodation

Castle hotel Hrubá Skála

Accommodation will be provided (reserved) on the basis of a obligatory application and requirements at the conference venue.

Accommodation will be paid for by each participant on the spot at the hotel reception.

More information about accommodation and hotel <https://www.hotelhrubaskala.cz/>

Accommodation prices:

- **Single** or double room occupied by one person 1 750 CZK / pers. night including breakfast
- Accommodation in a **double room** per person (when occupied by two people) 1 075 CZK / pers. night including breakfast (2 150 CZK for 2 persons)
- Accommodation in a **3-bed room** per person 864 CZK / pers. night including breakfast (2 590 CZK for 3 persons)
- Accommodation in a **4-bed room** per person 848 CZK / pers. night including breakfast (2 590 CZK for 4 persons)



Company presentations and advertising in magazines

To the registered firms and companies is enabled the presentation in the form of lectures, handouts, demonstrations of instruments, devices or products. Each company will have a separate place for the presentation of their products (brochures) and possibly the advertisement in the conference journal.

Data for the publication of advertisements in magazines (Manufacturing Technology) must be delivered **no later than 30. 8. 2021**. Materials for advertising consult with journal editors through e-mail jaroslava.svobodova@ujep.cz. The delivered advertisement will not be edited.

PRICE FOR ADVERTISEMENT in the magazine Manufacturing Technology is 170 EUR for 1 page A4 in black and white and 330 EUR for 1 page A4 in colour.

PRICE OF THE COMPANY PRESENTATION IN THE CONFERENCE ROOM for rental of the space for equipment and facilities is 80 EUR.

* Prices without VAT



Preliminary summary of lectures

Abdallah Sabrin	TU v Liberci	<i>Biogenní syntéza nanočástic oxidů železa</i> <i>Biogenic Synthesis of Iron Oxide Nanoparticles</i>
Andršová Zuzana	TU v Liberci	<i>EBSO study of microstructure of cold drawn seamless tubes</i> <i>EBSO Study of Microstructure of Cold Drawn Seamless Tubes</i>
Benediková Alexandra	TU v Liberci	<i>Syntéza nanočástic v systému Lu₂O₃ - Bi₂O₃</i> <i>Synthesis of Lu₂O₃ - Bi₂O₃ Nanoparticles</i>
Beneš Petr	ZČU v Plzni	<i>Využití vybraných technik NDT pro kontrolu tepelného zpracování</i> <i>Selected NDT Techniques in Heat Treatment Control</i>
Beránek Libor	ČVUT v Praze	<i>Využití počítačové tomografie v kontrole kvality rozměrů a NDT</i> <i>Use of Computed Tomography in Dimensional Quality Control and NDT</i>
Bricín David	ZČU v Plzni	<i>Struktura a vlastnosti boridových vrstev u různých typů technicky významných materiálů</i> <i>The Structure and the Properties of the Boride Layers of the Various Types of Technically Important Materials</i>
Bunda Zbyněk	ZČU v Plzni	<i>Analýza poškození ozubených kol do závodních motocyklů typu cross</i> <i>Analysis of Gear Damage to Cross Racing Motorcycles</i>
Dám Karel	OLYMPUS CZECH GROUP, S.R.O., ČLEN KONCERNU	<i>Mikroskop Olympus DSX1000 aneb co je v mikroskopii nového</i> <i>Olympus DSX1000 Microscope - What's New in Microscopy</i>
Dudák Michal	ANAMET s.r.o.	<i>Automatická analýza nekovových vměstků v oceli na stolním SEM Phenom Particle X</i> <i>Automatic Analysis of Nonmetallic Inclusions in Steel by Desktop SEM Phenom Particle X</i>
Dvorský Drahomír	VŠCHT Praha	<i>Mikrostruktura, mechanické a korozní vlastnosti extrudovaného mletého hořčikového prášku</i> <i>Microstructure, Mechanical and Corrosion Properties of Extruded Milled Magnesium Powder</i>
Gávelová Petra	Centrum výzkumu Řež s.r.o.	<i>Mikrostruktura zirkoniového pokrytí paliva: TEM a EBSO analýza referenčních a neutrony ozářených slitin</i> <i>Microstructure of Zirconium Fuel Claddings: TEM and EBSO Studies of As-received and Neutron-irradiated Materials</i>



6th International Conference
**Microscopy and Non-destructive
Material Testing**
Czech Republic

Hren Iryna	FSI UJEP	<i>Analyza vlivu stavu povrchu na korozní chování slitiny 2024</i> <i>Analysis of the Influence of Surface Condition on the Corrosion Behavior of Alloy 2024</i>
Kejzlar Pavel	TU v Liberci	<i>Porovnání antibakteriálního vlivu oxidu měďnatého dopovaného do nanovlákněných struktur ve formě nanočástic vs. RF-PACVD/MS</i> <i>The Comparison of Antibacterial Effect of CuO Doped into Nanofibers in Form of Nanoparticles vs. RF-PACVD/MS</i>
Knaislová Anna	VŠCHT Praha	<i>Příprava slitin Ti-Al-Si s nízkým obsahem křemíku práškovou metalurgií</i> <i>Preparation of the Ti-Al-Si with the Low Content of Silicon by Powder Metallurgy</i>
Kolská Zdeňka	PřF UJEP	<i>BET a BJH analýzy velikosti povrchu a porozity, další nedestruktivní metody charakterizace materiálů</i> <i>BET and BJH Analyses of Surface Area and Porosity, Other Non-destructive Methods for Material Characterization</i>
Koreček David	TU v Liberci	<i>Numerická simulace jako nástroj pro predikci procesu plošného tváření TRIP oceli HCT690</i> <i>Numerical Simulation as a Tool to Predict Sheet Metal Forming Process of TRIP Steel HCT690</i>
Křištofová Patrícia	VŠCHT Praha	<i>Aditivní výroba hořčikové slitiny WE43 - metodou selektivního laserového tavení</i> <i>Additive Manufacturing Magnesium Alloy WE43 - by Selective Laser Melting Method</i>
Kroisová Dora	Technická univerzita v Liberci	<i>Využití FIB pro přípravu struktury analogické přírodnímu povrchu a její replikace vybranými typy polymerů</i> <i>The Use of FIB for the Preparation of a Structure Analogous to the Natural Surface and Its Replication by Selected Types of Polymers</i>
Kučera Vojtěch	VŠCHT Praha	<i>Odporové bodové svařování martenzitické oceli se zinkovým povlakem</i> <i>Resistance Spot Welding of Martensitic Steel with Zinc Coating: Possible Risk of Liquid Metal Embrittlement</i>
Kučerová Ludmila	ZČU v Plzni	<i>Chrakterizace spoje vyrobeného 3D tiskem maraging oceli na konvenční maraging ocel</i> <i>Characterisation of the Joints of 3D Printed Maraging Steel Deposited on Conventional Maraging Steel</i>
Kubásek Jiří	VŠCHT Praha	<i>Slitiny zinku jako materiály pro biodegradovatelné zdravotnické prostředky</i> <i>Zinc Alloys as Prospective Materials for Biodegradable Medical Devices</i>



6th International Conference
**Microscopy and Non-destructive
Material Testing**
Czech Republic

Lejček Pavel	VŠCHT v Praze	<i>Komplexní charakterizace mikrostruktury železa připraveného selektivním laserovým tavením</i> <i>Multiscale Characterization of Microstructure of Iron Produced by Selective Laser Melting</i>
Mamoň Filip	Ústav anorganické chemie AV ČR, v.v.i.	<i>Vývoj a analýza pokročilých hybridních nanolaminátů na bázi ternárních Mn+1AXn a binárních MXene pro aplikace v extrémních podmínkách</i> <i>Development and Analysis of Advanced Hybrid Nanolaminates Based on Ternary Mn+1AXn and Binary MXene for Applications in Extreme Conditions</i>
Mareš Jakub	Ústav anorganické chemie AV ČR, v.v.i.	<i>Vývoj nanokompozitního materiálu na bázi TiO₂ a grafenu</i> <i>Development of Nanocomposite Material Based on TiO₂ and Graphene</i>
Michalcová Alena	VŠCHT Praha	<i>Kinetika vzniku intermetalických fází v kompozitu Al slitiny s Ni</i> <i>Kinetic of The Intermetallic phases growing in the Al alloy – Ni composite</i>
Michna Štefan	FSI UJEP	<i>Současné trendy v nano a mikro povlakování</i> <i>Current Trends in Nano and Micro Coating</i>
Müller Miroslav	ČZU v Praze	<i>Výzkum hybridních adhezivních vazeb s plnivem na bázi prášku zrnkové kávy vystavených cyklickému zatížení</i> <i>Research on Hybrid Adhesive Bonds with Filler Based on Coffee Bean Powder Exposed to Cyclic Loading</i>
Novák Pavel	VŠCHT Praha	<i>Mikrostruktura slitin připravených redukcí hlubokomořských kongrecí hliníkem a křemíkem</i> <i>Microstructure of the Alloys Prepared by Reduction of Deep Sea Nodules by Aluminium and Silicon</i>
Petržilková Michaela	TU v Liberci	<i>Fotokatalyticky aktivní nátěrová suspenze na bázi ZnO nanočástic s antimikrobiálním účinkem</i> <i>ZnO NPs Based Photocatalytic Coating with Enhanced Antimicrobial Activity</i>
Petřík Milan	OLYMPUS CZECH GROUP, S.R.O., ČLEN KONCERNU	<i>Nová ultrazvuková technika TFM a její aplikace v praxi</i> <i>New Ultrasound Technique TFM and Its Application in Practice</i>
Průcha Vojtěch	ZČU v Plzni	<i>Vliv hlubokého kryogenního zpracování na velikost zrna slitutého karbidu WC-Co</i> <i>Influence Of Deep Cryogenic Processing On Carbide Grain Size In Sintered Carbide WC-Co</i>
Roudnická Michaela	VŠCHT Praha	<i>Aditivně vyrobená biomedicínská slitina titanu: Vliv zpracování na tribologické vlastnosti</i> <i>Biomedical Titanium Alloy Prepared by Additive Manufacturing: Effect of Processing on Tribology</i>



Salvetr Pavel	COMTES FHT	<i>Vliv křemíku a mědi vlastnosti oceli 54SiCr6</i> <i>Influence of Si and Cu content on properties of 54SiCr6 steel</i>
Seibert Ondřej	TU v Liberci	<i>Modifikace lubrikačních vlastností motorového oleje 10W-40</i> <i>Modification of Motor Oil 10W-40 Lubrication Properties</i>
Sobotka Jiří	TU v Liberci	<i>Porovnání přesnosti optického 3D skeneru a CT skeneru</i> <i>Accuracy Comparison of the Optical 3D Scanner and CT Scanner</i>
Strakosova Angelina	VŠCHT Praha	<i>Chování vysoce pevné X3NiCoMoTi 18-9-5 maraging oceli za zvýšených teplot</i> <i>Influence of Elevated Temperatures on the High Strength X3NiCoMoTi 18-9-5 Maraging Steel Behavior</i>
Sviantek Jan	FSI UJEP	<i>Vybrané aspekty boridování kovů</i> <i>Selected Aspects of Metal Boriding</i>
Szabó Matúš	TU v Košiciach	<i>Mikroskopické hodnotenie ZnO vyrobeného z odpadov</i> <i>Microscopic Evaluation of ZnO Produced from Waste</i>
Šerák Jan	VŠCHT Praha	<i>Vliv tepelné historie na mikrostrukturu a mechanické vlastnosti slitiny AlSi8Cu2Fe</i> <i>The Influence of Thermal History on the Microstructure and Mechanical Properties of AlSi8Cu2Fe Alloy</i>
Šramhauser Karel	FSI UJEP	<i>Použití elektronového mikroskopu při hodnocení opotřebení hlavního hřbetu a čela výměnné břitové destičky</i> <i>Using of the Electron Microscope to Evaluate the Wear of Major Flank Face and Rake Face of Indexable Cutting Insert</i>
Švorčík Václav	VŠCHT Praha	<i>Nové technologie - příležitost pro průmysl a pro lidi</i> <i>New technologies - an opportunity for industry and for people</i>
Řavodová Miroslava	TU ve Zvolene	<i>Možnosti úpravy radlic pre zvýšenie ich životnosti používaných na zimnú údržbu lesných ciest</i> <i>Possibilities of Modification of Mloughshares to Increase Service Life Used for Winter Maintenance of Forest Roads</i>
Voňavková Ilona	VŠCHT Praha	<i>Charakterizace β-Ti slitiny připravené metodou SLM</i> <i>Characterization of β-Ti Alloy Prepared by SLM Method</i>



Science Without Borders SWB
MANUFACTURING TECHNOLOGY
<http://journal.strojirenskatechnologie.cz>
MEDIA PARTNER

**Supported by the OP VVV Project Development of new nano and micro coatings on
the surface of selected metallic materials
NANOTECH ITI II.
Reg. No CZ.02.1.01/0.0/0.0/18_069/0010045**



EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education

