



Predsednik IFHTSE prof. XU Kevel izroča priznanje Fellow recognition izr. prof. dr. Vojtehu Leskovšku  
The President of IFHTSE, Prof. XU Kevel, presenting the Fellow recognition to Prof. Dr. V. Leskovšek

## Čestitka

Mednarodno združenje za toplotno obdelavo in inženirstvo površin podeljuje častno članstvo IFHTSE posameznikom, ki prispevajo izreden, globalno priznan in pomemben prispevek k razvoju toplotne obdelave in inženirstva površin. Izr. prof. dr. Vojteh Leskovšek je bil izvoljen za častnega člana IFHTSE na 20. kongresu, ki je bil 22. oktobra 2012 v Pekingu na Kitajskem. Priznanje temelji na njegovem dolgoročnem prispevku pri študiju toplotne obdelave in inženirstva površin z močnim poudarkom na lomni žilavosti, vakuumski toplotni obdelavi orodnih in hitroreznih jekel z uporabo kriogene tehnike, kot tudi termomehanske obdelave.

Slovenija ima spoštljivo tradicijo v proizvodnji jekel, ki dosegajo optimalne uporabne lastnosti po primerni toplotni obdelavi, od jekel za močno obremenjene dele strojev in dele motorjev za vozila do malo legiranih in hitroreznih jekel. Različna orodja, od livarskih kokil do orodij za utopno kovanje, so ključnega pomena za kvaliteto in konkurenčnost industrijskih podjetij, ki večino svoje proizvodnje prodajo v razvitih zahodnoevropskih deželah.

Po ustanovitvi prvega Laboratorija za vakuumsko toplotno obdelavo leta 1984 na Metalurškem inštitutu v Ljubljani, sedaj Inštitutu za kovinske materiale in tehnolo-

## Congratulations

The International Federation of Heat Treatment and Surface Engineering awards the honour of Fellow of IFHTSE to individuals who have made outstanding, globally recognised and significant contributions to the development of heat treatment and surface engineering. Prof. Dr. Vojteh Leskovšek was elected as a Fellow of IFHTSE at the 20<sup>th</sup> Congress in Beijing, China on the 22<sup>nd</sup> of October 2012. The recognition is based on his long-term contribution to the study of heat treatment and surface engineering with a strong emphasis on fracture toughness, the vacuum heat treatment of tool and high-speed steels, and the use of sub-zero as well as thermochemical treatments.

Slovenia has a respected tradition in the production of steels that obtain optimal properties for use after a proper thermal treatment, from steels for heavily loaded parts of machinery and motors for parts of vehicles as well as low-alloyed and high-speed steels. Different tools, from casting moulds to forging dies, are essential for the quality and competitiveness of industrial companies marketing their products, mostly with exports to developed Western European countries.

After establishing the first laboratory for vacuum thermal treatment at the Metallurgical Institute of Ljubljana, now the Institute of Metals and Technology, in

logije, je izr. prof. dr. Leskovšek prevzel težko nalogo, da bi pokazal možnosti nove tehnologije in jo prenesel v industrijo, ki je uporabljala konvencionalne postopke in opremo za toplotno obdelavo. Z upoštevanjem možnosti razpoložljive vakuumske peči se je obrnil k proizvajalcem in uporabnikom livarskih orodij, kovaških orodij in orodij za štancanje. Po uspehu v manjših podjetjih se je tehnologija razširila tudi v večja podjetja in izvoznike, več vakuumskih naprav za toplotno obdelavo je nadomestilo konvencionalne naprave za toplotno obdelavo v večjih industrijskih podjetjih. Uspeh na področju vakuumske toplotne obdelave je bil dobra podlaga za podporo večjih industrijskih podjetij inštitutu pri nabavi naprave za tehnologijo obdelave površin v plazmi v letu 1993. Tudi uporaba te tehnologije v industrijskih podjetjih v Sloveniji je v porastu.

Poleg uvajanja in razširjanja teh dveh novih tehnologij so pomembni tudi rezultati izr. prof. dr. Leskovška na področju raziskav postopkov toplotne obdelave. Opazen dosežek je bilo uvajanje metode za določanje lomne žilavosti trdih in krhkih jekel, posebno še hitroreznih in močno legiranih orodnih jekel. Rotacijska simetrija vzorcev omogoča, da se izognemo nenatančnosti, povezani z nesimetrično hitrostjo ohlajanja vzorcev, in izračun kritične velikosti napake, ki vpliva na zdržljivost industrijskih orodij. Pomemben uspeh je tudi razvoj enačbe, ki povezuje lomno žilavost hitroreznih in ledeburitnih jekel s trdoto po Rockwellu, vsebnostjo zaostalega avstenita, z deležem in razdaljo med karbidi, kot tudi z modulom elastičnosti. Številni članki s citiranjem, uporabnost in znanstveni dosežki so razširili ime izr. prof. dr. Vojteha Leskovška v skupnostih za toplotno obdelavo in orodna jekla ter podprli njegovo izvolitev za častnega člana IFHTSE. Njegov uspeh je dober zgled za mlade, da s trdim delom lahko tudi znanstvenik iz majhne države doseže mednaroden ugled in priznanje.

Priznanje in izvolitev izr. prof. dr. Vojteha Leskovška za častnega člana IFHTSE odlikuje tudi Inštitut za kovinske materiale in tehnologije, Ljubljana.

Iskrene čestitke izr. prof. dr. Vojtehu Leskovšku v imenu kolegov in sodelavcev inštituta ter industrijskih podjetij.

prof. dr. Franc Vodopivec

1984, Prof. Dr. Leskovšek took over the difficult task of demonstrating the possibilities of the new technology and its expansion in industrial companies using conventional processes and equipment for thermal treatment. Considering the possibilities of the available vacuum furnaces, he turned to producers and users of casting moulds, forging and stamping dies. Thanks to successes in smaller companies, the technology expanded to larger companies and exporters and several vacuum-treatment facilities substituted conventional heat treatment in larger industrial companies. The success in vacuum heat treatment was a good reference for the support of several industrial companies for the institute to acquire the equipment for plasma surface treatment technology in 1993. The use of this technology in industrial companies in Slovenia is also expanding.

Besides the introduction and expansion of two new technologies of remarkable importance are the results of Prof. Dr. Leskovšek in the field of the research of heat-treatment processes. A notable achievement was the introduction of a method for determining the fracture toughness of hard and brittle steels, especially high-speed and high-alloyed tool steels. The rotational symmetry of the specimens makes it possible to avoid inaccuracies related to the uneven cooling rate of specimens and the calculation of a critical defect size that affects the useful life of industrial tools. Another remarkable success is the development of an equation that relates the fracture toughness of high-speed and ledeburitic tool steels to Rockwell hardness, the content of residual austenite, the fraction of carbide particles and spacing as well as the modulus of elasticity. A number of articles with the quoted and other original applied and scientific findings have spread the name of Prof. Dr. Vojteh Leskovšek in the heat-treatment and tool-steels communities and supported his election to Fellow of IFHTSE. His success is a good example for youth, that with hard and properly focused work, scientists from small countries can also acquire an international reputation and recognition.

The recognition and election of Prof. Dr. Vojteh Leskovšek as Fellow of IFHTSE also honours the Institute of Metals and Technology, Ljubljana, Slovenia.

We would like to offer our sincere congratulation to Prof. Dr. Vojteh Leskovšek on behalf of his colleagues and collaborators from the institute and industrial companies.

Prof. Dr. Franc Vodopivec