# 1 CURRICULUM VITAE

## PERSONAL INFORMATION


Family name, first name, title: **Csanádi, Tamás, PhD.**

Workplace and contacts:

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22nd February 1985, Budapest, Hungary; Hungarian

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Google Scholar: https://scholar.google.com/citations?user=0dKOCscAAAAJ&hl=en

URL for the web site: https://wwwnew.saske.sk/imr/en/staff/basic-info/?user_no=11095


## EDUCATION

2013 – 2017 **PhD in Materials Science** (awarded 31st August 2017)
Technical University of Košice (TUKE) / Institute of Materials Research – Slovak Academy of Sciences (IMR-SAS), Košice, Slovakia
Title: Nanomechanical testing and deformation analysis of WC, β-$Si_3N_4$ and $ZrB_2$ ceramic crystals, Supervisor: Prof Ján Dusza

2009 – 2012 **PhD studies** (PhD degree not obtained)
Eötvös Loránd University (ELTE) – Physics Graduate School, Budapest, Hungary
Specialization: Solid state physics and materials science (PhD pre-degree certificate, 2012), Topic: Severe plastic deformation of fcc metals

2003 – 2009 **Master (MSc and BSc)**, Mathematics-Physics teacher (awarded 29th April 2009)
Faculty of Science / Department of Materials Physics, Eötvös Loránd University (ELTE), Budapest, Hungary

## CURRENT POSITION

2017 – **Postdoctoral researcher**
Division of ceramic and non-metallic systems, Institute of Materials Research – Slovak Academy of Sciences (IMR-SAS), Košice, Slovakia

## PREVIOUS POSITIONS

2012 – 2013 **Assistant lecturer**
Faculty of Science / Department of Materials Physics, Eötvös Loránd University (ELTE), Budapest, Hungary

2011 – 2012 **Laboratory assistant teacher**
Faculty of Science / Department of Materials Physics, Eötvös Loránd University (ELTE), Budapest, Hungary

2008 – 2013 **Physics Teacher**
Sylvester J. Protestant High School, Budapest, Hungary

## FELLOWSHIPS AND AWARDS

2020 **ESET Science Award**, ESET Foundation, Exceptional young scientist in Slovakia under the age of 35, awarded by Prof. Kip Thorne, Bratislava, Slovakia

2020 **SAS-ERC Visiting Fellowship Grant** (3 months), Structural and Functional Ceramics, Department of Materials Science, Montanuniversität Leoben,

Austria

2019 **KMM-VIN Fellowship Grant** (1.5 months), Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Poland

2018 **Acta Student Award**, Acta Materialia Inc., awarded by Prof. Christopher A. Schuh, Columbus, Ohio, USA

2018 **JECS Trust Mobility Grant** (2 months), Department of Ceramics and Refractories, Faculty of Materials Science and Ceramics, AGH University of Science and Technology in Krakow, Poland

2018 – 2021 **Postdoctoral Fellowship of Štefan Schwarz Fund**, awarded by the Slovak Academy of Sciences, Bratislava, Slovakia

2017 **Prize of the Slovak Academy of Sciences for a team of young scientists**, awarded by the Slovak Academy of Sciences, Smolenice, Slovakia

2016 **ACERS Winter School Grant** (1 week), awarded by ECRES, University of Central Florida, Orlando, FL, USA

2015 **1st place on Competition of Young Scientists under the age of 35 years**, awarded by the Slovak Academy of Sciences, Bratislava, Slovakia

2015 **3rd place on ECERS (European Ceramic Society) Student Speech Contest**, awarded by ECERS, Toledo, Spain

2007 **Excellent student of Faculty of Science**, awarded by the Eötvös Loránd University (ELTE), Budapest, Hungary

## TEACHING ACTIVITIES

2011 – 2013 **Laboratory assistant teacher** – "Classical physics experiments", Faculty of Science / Department of Materials Physics, Eötvös Loránd University (ELTE), Budapest, Hungary

2008 – 2013 **Physics Teacher** – "High-school physics", Sylvester J. Protestant High School, Budapest, Hungary

## PUBLICATIONS AND CONFERENCES

2010 – Author of **56 peer-reviewed scientific articles** (first author in 23 times) with more than **1600 citations** in total and has an **h-index of 22** (Scopus). Delivered 36 oral presentations on international conferences, of which 6 were invited talks.

## ORGANISATION OF SCIENTIFIC MEETINGS

2020 Organizer of the "Refractory Metals and Hard Materials (RMH)" symposium at the 16th and 17th International Symposium on Novel and Nano Materials conference (ISNNM2020, ISNNM2022), Korea

## INSTITUTIONAL RESPONSIBILITIES

2017 – Faculty member/Leader of nanomechanical testing laboratory, Division of Ceramics and Non-metallic Materials, Institute of Materials Research – Slovak Academy of Sciences (IMR-SAS), Košice, Slovakia

## REVIEWING ACTIVITIES

2014 – Regular reviewer for Acta Materialia, Scripta Materialia, Carbon, Journal of the European Ceramics Society, International Journal of Refractory Metals and Hard Materials and Ceramics International.

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2015 – Member of the "European Ceramic Society" via "Slovak Ceramic Society"

## MAJOR COLLABORATIONS

2009 – **Prof. Nguyen Q. Chinh**, "Micro/nanomechanical characterization of fcc

metals and advanced ceramic grains", Faculty of Science, Eötvös Loránd University, **Hungary**

2014 – **Prof. Pavol Šajgalík**, "Deformation behaviour of grains and grain boundaries of β-$Si_3N_4$", Institute of Inorganic Chemistry, Slovak Academy of Sciences, **Slovakia**

2015 – **Prof. Michael J. Reece**, "Development of ultra-high temperature high-entropy ceramics", School of Engineering and Material Science, Queen Mary University of London, **United Kingdom**

2016 – **Prof. William G. Fahrenholtz**, "Nanomechanical testing of ultra-high temperature ceramics", Materials Science and Engineering Department, Missouri University of Science and Technology, **United States**

2020 – **Prof. Raul Bermejo**, "Understanding fracture behaviour of textured alumina ceramic composites at the micro-scale", Department of Materials Science, Montanuniversität Leoben, **Austria**

## LEADER OF PROJECTS

2021 – 2024 **Seal of Excellence – STRENGTHECS:** Strengthening and plasticity of high-entropy ultra-high temperature carbides

2021 – 2023 **VEGA 2/0174/21**: Nanomechanical testing and deformability of high-entropy ultra-high temperature ceramics

2020 – 2024 **COST-CA19140** (project leader in Slovakia): Focused ion technology for nanomaterials

## RESEARCH SKILLS AND QUALIFICATIONS

- Fields of research: 1) investigation of the plastic deformation of fcc metals and alloys in wide range of strain and temperature (experimental and modelling), 2) development of novel advanced and ultra-high temperature ceramics, including high-entropy ceramics, by micro/nanomechanical testing (e.g. nanoindentation, micropillar compression) and deformation anisotropy analysis
- Expert in material testing methods at macro/micro/nano levels (indentation, tension, compression, scratch, torsion, ECAP, HPT) and characterization techniques (SEM, EBSD, AFM, X-ray)
- Experienced user of micro- and nanoindenters, macromechanical testers, AFM, SEM machines
- Familiar with different microscope methods (optical microscope, x-ray, electron microscopy) *(X-Ray Line Profile Analyzes Course 2011)*
- Extended knowledge in Maple and Origin programs, user of Finite Element Method software (Abaqus)
- Microsoft Word, Excel, PowerPoint, Publisher, programming ability in Python
- Native in Hungarian, fluent in English *(Intermediate B2 language exam 2009),* basic in French (*Beginner B1 language exam 2014*)

## SELECTED PUBLICATIONS

**T. Csanádi**, E. Castle, M.J. Reece, J. Dusza, Strength enhancement and slip behaviour of high-entropy carbide grains during micro-compression, **Scientific Reports** 9 (2019) 10200.

**T. Csanádi**, A. Kovalčíková, J. Dusza, W.G. Fahrenholtz, G.E. Hilmas, Slip activation controlled nanohardness anisotropy of $ZrB_2$ ceramic grains, **Acta Materialia** 140 (2017) 452-464.

**T. Csanádi**, M. Bl'Anda, N.Q. Chinh, P. Hvizdoš, J. Dusza, Orientation-dependent hardness and nanoindentation-induced deformation mechanisms of WC crystals, **Acta Materialia** 83 (2015) 397-407.

**T. Csanádi**, N.Q. Chinh, J. Gubicza, T.G. Langdon, Plastic behavior of fcc metals over a wide range of strain: Macroscopic and microscopic descriptions and their relationship, **Acta Materialia** 59 (2011) 2385-2391.