Personal data:

Name:	*Maria Berkes Maros*
Profession:	*Assistant Professor*
Place and date of birt:	*Miskolc, 13. 04. 1958.*
Nationality:	*Hungarian*
Sex.	*female*
Place of work:	*University of Miskolc,* *Department of Mechanical Engineering (DME)* *H-3515, Miskolc-Egyetemváros*
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Studies:

1976-81:	*Technical University for Heavy Industry (currently University of Miskolc), Faculty of Mechanical Engineering*
1990:	*Advanced Methods for Microstructural Investigation of Metallic Materials, Postgraduate course, University of Miskolc*
1991-94:	*Postgraduate studies on Materials Sciences at Kossuth Lajos University of Arts (KLTE) and University of Miskolc*
1993-96:	*Ph.D. Research, Doctoral Thesis, University of Miskolc*

Scientific Degrees and Qualifications:

1981:	*MSc, Mechanical Engineer, No 120/1981.Thesis: Increasing the Lifetime of the the External Ring of Ball Bearings by Surface Ironing with Diamond Tool*
1981:	*Technical translator – Russian/Hungarian, No 120/1981*
1994:	*MSc, Engineer-Physicist on Materials Science,No 241/1994.* *Thesis: "Microstructural Features of Low Cycle Fatigue and their Temperature Dependence"*
1997:	*Doctor Universitatis, No 1028/1997.* *Thesis: "Microstructural Characteristics of Low Cycle Fatigue and Correlation between the Empirical Parameters of the Manson-Coffin Relationship"*
1998:	*Ph.D. No 140/1998.*

Assignments:

2001-	*Assistant professor (University of Miskolc, DME*)
1999-2001:	*Senior Lecturer (University of Miskolc, DME*)
1990-98:	*Scientific Co-worker (University of Miskolc, DME*)
1985-90:	*Assistant Lecturer (Univ. of Miskolc, Department of Mechanical Engineering – DME)*
1981-85:	*Scientific co-worker, (Research & Development Institute for Combustion Engineering "TÜKI", Miskolc, Hungary)*

Language

Certificates: English: medium level state exam; Russian: high level state exam

Language skills:

Language	Understanding				Talking				Writing	
	Heard text		Read text		Conversation		Cont.talk			
English	C2	master level	C1	master level	C2	master level	C2	master level	C1	master level
Russian	B2	independent language user	C1	master level	B2	independent language user	B2	independent language user	C2	master level
German	A1	basic level	A2	basic level	–	–	–	–	–	–

Scholarships:

2003-2006 *Bolyai János Postgradual Scholarship*
Topic: "Investigation and Modelling of Tribological Behaviour of Silicon Nitride Ceramics"

1998-2001: *Bolyai János Postgradual Scholarship*
Topic: „Advanced Lifetime Assessing Methods for Low Cycle Fatigue of Metallic Materials

09.27- 10.24. 1998.:
University of Birmingham, England, School of Metallurgy and Materials,
Tempus Phare IMG-97-H-2039
Topic: Development of curricula and methodology related to eduction of Non-metallic Materials at the University of Miskolc

07.01-07.30. 1996.:
Oxford University, Anglia. Department of Mechanical Engineering,
(*British Council - Soros Alapítvány: "Oxford Colleges Hospitality Scheme Scholarship),*
Topic:Connection between the Low Cycle Fatigue and the thermally activated plastic deformation processes

Research Activity:

Main research field: Materials Science, Materials testing, Engineering Ceramics, Damage process of materials,

Competency:

32-year training of research and higher education in the field of Materials Sciences and technologies, materials testing (mechanical and microstructural) of metals, ceramics, polymers, and composites.

Most important research topics:

- Analysis of structure/production/property relationship and damage process of ceramics under static, dynamic and tribological loading conditions.
- Fracture mechanical and tribological characterization of engineering ceramics, with special attention to Si_3N_4 based nanocomposites;
- Surface characterization of volume and surface treated engineering materials.
- Development of hard and superhard coatings for automotive components and tools
- Multi-scale characterization of materials;
- Investigating the residual stresses of production origin in glass surfaces by indirect testing methods;
- Physical modelling in life prediction of metallic materials under Low Cycle Fatigue Condition; Integrating theory of thermally activated plasticity and micromechanical processes of LCF of metals.

Project leader or R&D program leader

2016-2020 Advanced materials and smart technologies, establishing FIEK at the University of Miskolc, GINOP-2.3.4-15-2016-00004 project. Supported by the European Union and the Hungarian State, co-financed by the European Regional Development Fund aiming at promoting the cooperation between the higher education and the industry; 5838 mHUF

- *Subproject 2.: Modern materials technologies;*

2013-2014 Materials Development in the Automotive Industry: Fundamental Research Programme focusing the Forming, Heat Treatment and Welding Technologies, TÁMOP-4.2.2/A-11/1-KONV-2012-0029, project in the framework of the New Hungarian Development Plan; supported by the European Union, co-financed by the European Social Fund; 473 mHUF

- *Subprogram 2.3.2: Development of advanced and complex surface characterization techniques to enhance the effectiveness of the volume and surface treatments of engineered materials for automotive industry;*
- *Subprogram 4.2.2.: Multi-scale characterization and investigation of structure-property relationship of advanced engineering ceramics and nanocomposites*

2007-2010 Optimization of Plasma Enhanced PVD technology for the wear resistant nanocomposite DLC based coatings, Bilateral project agreement between IMR, Kassa, Slovakia and UM, Miskolc Hungary.

2004-2008 Analysis and Modelling of Tribological and Fracture Process of Si3N4 based ceramics, OTKA T046467, 7.047 mHUF

2003-2006 Investigation and Modelling of Tribological Behaviour of Silicon Nitride Ceramics, Bolyai János Postgradual Scholarship, 4,5 mHUF

2003-2006 Theoretical and experimental analysis of residual stresses of production origin in glass surfaces, Tutorial contract with General Electric, Ltd. Hungary

1998-2001: Advanced Lifetime Assessing Methods for Low Cycle Fatigue of Metallic Materials, Bolyai János Postgradual Scholarship 2 mHUF

1999-2003: Special problems of weldability of HDPE pipeline structural elements, Industrial contract, 3mHUF

1999-2001: Role of the Thermally Activated Processes in the Low Cycle Fatigue of Metallic Materials; OTKA* T 030779, 1.207 mHUF.

1996: Connection between the Low Cycle Fatigue and the thermally activated plastic deformation processes, (British Council - Soros Foundation: "Oxford Colleges Hospitality Scheme Scholarship),

1997-1998: Development of curricula and methodology related to eduction of Non-metallic Materials at the University of Miskolc, Tempus Phare IMG-97-H-2039,

Participant:

2013-2014 Materials Development in the Automotive Industry: Fundamental Research Programme focusing the Forming, Heat Treatment and Welding Technologies, TÁMOP-4.2.2/A-11/1-KONV-2012-0029, project in the framework of the New Hungarian Development Plan. supported by the European Union, co-financed by the European Social Fund.; Project leader: Prof. M. Tisza; 473 mHUF

2011-2012 Improvement of the quality of higher education in the strategic research area of the University of Miskolc based on development of Centers of Competency; TAMOP-4.2.1.B-10/2/KONV-2010-0001 supported by the European Union, co-financed by the European Social Fund. A project in the framework of the New Hungarian Development Plan.; Project leader: Prof. Z. Gacsi; 150 mHUF

2005-2008 Application of Finite Element Analysis in Materials Science and Materials Processing Technologies, OTKA project financed by the National Science Foundation, Project leader: Dr. Miklós Tisza,

2003-2006 Numerical Modelling and Simulation in the Mechanical Technologies, HAS-UM, Mechanical Engineering Research Group; Project leader: Dr. Miklós Tisza, 10 mHUF.

2002-2006 Connection between the Low Cycle fatigue, High Cycle Fatigue and Fatigue Crack Growth, OTKA T 034503, Project leader: Dr. János Lukács

2002-2004 Advanced Engineering – Learning in English, PHARE HU0008-02-01-0071, Coordinator Kocsis Baán, M. subcoordinators: Tisza, M. and Maros, M., 70 800 EUR,

2002-2005 Modelling and Simulation in Materials Science and Technologies, OTKA T037437, Project leader: Dr. Miklós Tisza, 12 mHUF

2004 Fractographycal Characterization of Brittle Failure of Silicon Nitride Ceramics (International cooperation in the framework of Scientific Activity of the ESIS TC6 Ceramic Working Group)

2001-2004 INNOVATE – International On-line Vocational Training in Surface Engineering, LEONARDO UK/01/B/P/PP-126_462, Contractor: Institute of Materials, Minerals and Mining (IOM3), Coordinator: ME, ÉMRTK, Dr. Maria Kocsis Baán, 599 500 EUR

1999-2002: Investigation of the Failure Process by Magnetic- and Electro-emission Technique, OTKA T030057, Project leader: Lenkey, B.Gy., 2.7 mHUF

1997-1999: Lifetime Management of Transit Oil and Gas Pipelines in CCE/NIS Countries. Development of the Knowledge Based Multimedia Software for Lifetime Management, "LIMATOG", 15-C15-0715, INCO COPERNICUS Project leader: : Dr. Miklós Tisza, 309.000 ECU

1997-99: Analysis and Evaluation of Integrity of Pipeline and Pressure Vessel Systems MKM FKFP 1285/97. (697 0507), Project leader: Dr. Gyula Nagy, 3 mHUF

1997-98: Properties and application of special alloys produced by powder metallurgical technology

1994-97: Damage processes of power plant materials at elevated temperatures, OTKA project, Leader. Tóth, L.

1991-92: Reliability and safety of gas pressure vessels, Industrial contract, Project leader. Tóth, L.

1990-93: Advanced intelligent flow detection methods for pipeline systems, Project leader: Török, I

1985-88: Metallurgical and qualification problems of boron micro-alloyed steels, Project leader. Tóth, L.

*Note: *OTKA projects are financed by the National Science Foundation*

Education development and tutorial activity:

Developing 20, delivering 24 different professional subjects for mechanical and materials science engineers during the last 30 years, spent in the education at the University of Miskolc.

- *Subjects in Hungarian:*
  Metallography, Engineering Materials, Specialty Alloys, Powder Metallurgy, Fundamentals of Materials Sciences, Nonmetallic Materials and Applications, Materials Testing, Mechanical Testing, Complex Design, Fracture Mechanics, Materials Informatics, Automotive materials, Nonmetallic materials and technologies;

- *Subjects in English:*
  Metallography, Material Testing, Mechanical Technology, Heat Treatment, Specialty Alloys, Fundamentals of Materials Sciences, Nonmetallic Materials

Supervised PhD research topics:

2017- Theoretical and experimental study for optimising the tribological behaviour of duplex treated surface layers developed for automotive parts
2016- Enhancing the tribological performance of tools used for sheet metal forming of high strength automotive sheet materials applying hard and superhard coatings
2015- Small Punch destructive material procedures for managing the aging problem of operating engineering structures
2015- Theoretical analysis and investigation of tribological behaviour of Si3N4 ceramic nanocomposites
2007-2013 Tribological behaviour of MWNT reinforced silicon nitride nanocomposites
2004-2007 Analysis of the effect of production technology on the microstructure and dynamic fracture behaviour of silicon nitride ceramics
2002-2006 Effect of ion-implantation on the microstructural and tribological behaviour of silicon nitride ceramics;

Activity in management:

2011- Leader of the Metallography and Surface Characterization Laboratory;
2002-2010 Module leader of the Engineering Manager Specialization of the Mechanical Engineering Faculty;
2004-2007 Leader of the Materials Testing Division of DMT, UM;

Membership in scientific organizations:

2017- Member of the Ceramics and Silicates Subcommittee of the Materials Science Committee of the Miskolc Regional Academic Board of Hungarian Academy of Sciences (HAS)
2014- Member of the Materials Science and Technology Subcommittee of the Mechanical Engineering and Informatics Committee of the Miskolc Regional Academic Board of Hungarian Academy of Sciences (HAS)
2009- Member of the Public Body of Hungarian Academy of Sciences (HAS)
2003- Member of ESIS (European Structural Integrity Society)
TC6 (Technical Comittee 6),
2003- Member of the Materials Science Subcommittee of the Mechanical Engineering Committee of the Miskolc Regional Academic Board
2001- Foundress member of Bolyai János Academic Club of the Hungarian Academy of Sciences
1999- Member of the Hungarian Association of Material Sciences
1999- Member of the Advisory-Committee of the ASM Miskolc Student Chapter
1998- Member of the Materials Science Work Group of the Metallurgical Commitee of Miskolc Commitee of the Hungarian Academy of Sciences
1992-96, and 2000- Member of the Hungarian Chapter of the *ASM (American Society for Materials)*
1986- Member of the *Hungarian Scientific Association for Heavy Industry (GTE Hungary),*

Publication activity:

- Handbook: 5, Hungarian; (co-author in chapters)
- Papers in professional journals 22 English; 10 Hungarian
- Conference proceedings: 38 English, 3 German, 2 Russian, 22 Hungarian
- Report, and studies: 25 Hungarian
- Educational booklets, lecture notes, laboratory guidelines: 14 English, 11 Hungarian
- Number of publications: 119 papers and 40 others
- Number of citations: 75

Publication list: https://vm.mtmt.hu//search/slist.php?lang=0&AuthorID=10002412

05th Nov. 2017. Miskolc, Hungary

Dr. Maria Berkes Maros