František Chmelík, Associate Professor, MSc., PhD, born on 14 June 1960

## Current Position

#### Associate Professor of Physics, Vice-Dean for Student Affairs (from 2012), Department of Physics of Materials, Faculty of Mathematics and Physics, Charles University

## Education and Academic Degrees

1985 Diploma in Solid State Physics, Charles University

1986 Rerum naturalium doctor (MSc. equiv.), Metal Physics, Charles University

1994 Candidatus scientiarum (PhD equiv.), Physics of Condensed Matter and Acoustics, Charles University

2000 Associate Professor of Physics, Charles University

**Humboldt Research Fellow** (1999-2000, 2004, 2011) at Technical University Clausthal, Technical University Braunschweig and Helmholtz Zentrum Geesthacht, Germany.

**Chair** (2000-2008) and deputy chair (2009-2012) of the Department of Physics of Materials (formerly Department of Metal Physics), Faculty of Mathematics and Physics, Charles University

**Vice-Chair** of the Doctoral School 2609V001 "Acoustics", Faculty of Electrical Engineering, Czech Technical University in Prague, from 2013.

**Member** of the Doctoral School 4.1.3. Physics of Condensed Matter and Acoustics, Faculty of Science, Constantine the Philosopher University, Nitra, Slovakia, from 2014.

**Member** of the Doctoral School 4F3 Physics of Condensed Matter and Materials Research, Faculty of Mathematics and Physics, Charles University.

**Member** of the Board of Rigorous Examinations F3 Physics of Condensed Matter and Materials Research, Faculty of Mathematics and Physics, Charles University.

**Member** of Editorial Board: Materials Science and Engineering A, Elsevier Publishers.

## Chairman and Editor of Proceedings, International Symposium on Physics of Materials held in Prague (ISPMA 9 in 2003, ISPMA 10 in 2005, ISPMA 11 in 2008, ISPMA 12 in 2011, ISPMA 13 (2014) ISPMA 14, will be held in 2017).

**Member** of the European Academy of Sciences, Bruxelles, Belgium (www.eurasc.org).

## Main Research Activities

1. Fundamental aspects of dislocation related plasticity, self-organized criticality, size effects
2. Acoustic emission from solids (metals, composites, ceramics)
3. Structure and properties of aluminium and magnesium alloys, ceramics and metal matrix composites

* Plastic instabilities (twinning, Portevin – Le Châtelier effect)

1. Materials with ultrafine microstructures

##### Principal International Collaborations

**Department of Materials Physics** (Prof. Dr. János Lendvai), Eötvös Loránd University Budapest, Hungary, **Helmholtz Zentrum Geesthacht** (Prof. Dr. Karl Ulrich Kainer) Geesthacht, Germany, based on a contract with Charles University, **Laboratory of Mechanical Metallurgy**, École Féderale Polytechnique de Lausanne (Prof. Dr. Andreas Mortensen), Lausanne, Switzerland.

**Publication Activity (7 August 2017):**

Results found in WoS: 121

Sum of the Times Cited: 1683

Sum of Times Cited without self-citations: 1492

Citing Articles: 1273

Citing Articles without self-citations: 1190

Average Citations per Item: 13.91

h-index: 21

**Key papers from the last 4 years:**

1. M. Knapek, P. Dobron, K. Mathis, K. Illkova, A. Mortensen, F. Chmelik, Occurrence of the Portevin Le-Chatelier effect in open-cell microcellular Al-2 wt% Mg, Scripta Materialia 132 (2017), 13-16. IF = 3.747.

2. P. Minarik, E. Jablonska, R. Kral, J. Lipov, T. Ruml, C. Blawert, B. Hadzima, F. Chmelik, Effect of equal channel angular pressing on in vitro degradation of LAE442 magnesium alloy. Materials Science and Engineering C 73 (2017), 736-742. IF = 4.164.

3. J. Balik, P. Dobron, F. Chmelik, R. Kuzel, D. Drozdenko, J. Bohlen, D. Letzig, P. Lukac, Modeling of the work hardening in magnesium alloy sheets, International Journal of Plasticity 76 (2016), 166-185. IF = 5.623

2. P. Minarik, R. Kral, J. Cizek, F. Chmelik, Effect of different c/a ratio on the microstructure and mechanical properties in magnesium alloys processed by ECAP, Acta Materialia 107 (2016), 83-95. IF = 5.058

4. D. Drozdenko, J. Bohlen, S. Yi, P. Minarik, F. Chmelik, P. Dobron, Investigating a twinning-detwinning process in wrought Mg alloys by the acoustic emission technique, Acta Materialia 110 (2016), 103-113. IF = 5.0583.

5. M. Knapek, T. Hulan, P. Minarik, P. Dobron, I. Stubna, J. Straska, F. Chmelik, Study of microcracking in illite-based ceramics during firing, Journal of the European Ceramic Society 36 (2016), 221-226. IF = 2.933

6. D. Drozdenko, J. Bohlen, F. Chmelik, P. Lukac, P. Dobron, Acoustic emission study on the activity of slip and twin mechanisms during compression testing of magnesium single crystals, Materials Science and Engineering A 650 (2016), 20-27. IF = 2.647

7. C. Kadar, K. Mathis, I. N. Orbulov, F. Chmelik, Monitoring the failure mechanisms in metal matrix syntactic foams during compression by acoustic emission, Material Letters 173 (2016), 31-34. IF = 2.437

8. Zs. Kovacs, M. Ezzeldien, K. Mathis, P. Ispanovity, F. Chmelik, J. Lendvai: Statistical analysis of acoustic emission events in torsional deformation of a Vitreloy bulk metallic glass. Acta Materialia 70 (2014), 113-122.

IF = 3.940.

9. P. Dobron, J. Balik, F. Chmelik, K. Illkova, J. Bohlen, D. Letzig, P. Lukac: A study of mechanical anisotropy of Mg-Zn-Rare earth alloy sheet. Journal of Alloys and Compounds 588 (2014), 628-632. IF = 2.726

10. K. Illkova, P. Dobroň, F. Chmelík, K. U. Kainer, J. Balík, S. Yi, D. Letzig, J. Bohlen: Effect of aluminium and calcium on the microstructure, texture, plastic deformation and related acoustic emission of extruded magnesium–manganese alloys. Journal of Alloys and Compounds 617 (2014), 253-264. IF = 2.726