

**UNIVERZITA KOMENSKÉHO  
FAKULTA MATEMATIKY, FYZIKY A INFORMATIKY**

**Zoznam publikačnej činnosti**

**Mgr. Ivan Cimrák, PhD.**

**ACB Vysokoškolské učebnice vydané v domácich vydavateľstvách**

ACB01 Šuch, Ondrej 25% - Klimo, Martin 25% - Cimrák, Ivan 25% - Bachratá, Katarína 25%: Analýza procesov lineárnymi metódami. - 1. vyd. - Žilina : Žilinská univerzita, 2012. - 228 s. [12,04 AH]. - (Vysokoškolské učebnice)  
Lit. 26 zázň., 139 obr.  
ISBN 978-80-554-0556-8

**ADC Vedecké práce v zahraničných karentovaných časopisoch**

ADC01 Slodička, Marián 50% - Cimrák, Ivan 50%: Numerical study of nonlinear ferromagnetic materials  
Lit. 25 zázň., 4 obr., 1 tab.  
In: Applied Numerical Mathematics. - Vol. 46, No. 1 (2003), s. 95-111  
*Ohlasy (11):*  
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[o1] 2004 Liu, C. S.: Lie symmetry of the Landau-Lifshitz-Gilbert equation and exact linearization in the Minkowski space. In: Zeitschrift für Angewandte Mathematik und Physik, Vol. 55, No. 4, 2004, s. 606-625 - SCI ; SCOPUS  
[o1] 2004 Sun, J. - Collino, F. - Monk, P. B. - Wang, L.: An eddy-current and micromagnetism model with applications to disk write heads. In: International Journal for Numerical Methods in Engineering, Vol. 60, No. 10, 2004, s. 1673-1698 - SCI; SCOPUS  
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[o1] 2005 Zhai, J.: Stable solutions to Landau-Lifshitz-Maxwell equations. In: Indiana University Mathematics Journal, Vol. 54, No. 6, 2005, s. 1635-1659 - SCI ; SCOPUS  
[o1] 2006 Calvo, M. - Hernandez-Abreu, D. - Montijano, J. I. - Randez, L.: On the preservation of invariants by explicit Runge-Kutta methods. In: SIAM Journal on Scientific Computing, Vol. 28, No. 3, 2006, s. 868-885 - SCI ; SCOPUS  
[o1] 2006 Giuffrida, C. - Ragusa, C. - Repetto, M.: 3D Micromagnetic solution by finite formulation. In: Physica B-Condensed Matter, Vol. 372, No. 1-2, 2006, s. 299-302 - CPCI-S ; SCOPUS  
[o1] 2007 Liu, C. S.: A consistent computation of magnetization reversal under a circularly polarized field and an anisotropy field. In: CMC-Computers, Materials and Continua, Vol. 6, No. 2, 2007, s. 117-128 - SCI ; SCOPUS  
[o1] 2008 Banas, L.: Adaptive techniques for Landau-Lifshitz-Gilbert equation with magnetostriction. In: Journal of Computational and Applied Mathematics, Vol. 215, No. 2, 2008, s. 304-310 - CPCI-S ; SCOPUS  
[o1] 2009 Aziz, M. M.: Sub-nanosecond electromagnetic-micromagnetic dynamic simulations using the finite-difference time-domain method. In: Progress In Electromagnetics Research B, Vol. 2009, No. 15, 2009, s. 1-29 - SCOPUS

ADC02 Cimrák, Ivan 50% - Slodička, Marián 50%: Optimal convergence rate for Maxwell-Landau-Lifshitz system  
Lit. 9 zázň., 1 obr., 1 tab.  
In: Physica B - Condensed Matter. - Vol. 343, No. 1-4 (2004), s. 236-240

- ADC03 Cimrak, Ivan 50% - Slodicka, Marian 50%: An iterative approximation scheme for the Landau-Lifshitz-Gilbert equation  
Lit. 24 zazn., 1 obr., 3 tab.  
In: Journal of Computational and Applied Mathematics. - Vol. 169, No. 1 (2004), s. 17-32  
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[o1] 2005 Liu, C. S. - Ku, Y. L.: A combination of group preserving scheme and Runge-Kutta method for the integration of Landau-Lifshitz equation. In: CMES - Computer Modeling in Engineering and Sciences, Vol. 9, No. 2, 2005, s. 151-177 - SCI; SCOPUS  
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[o1] 2006 Kruzik, M. - Prohl, A.: Recent developments in the modeling, analysis, and numerics of ferromagnetism. In: SIAM Review, Vol. 48, No. 3, 2006, s. 439-483 - SCI ; SCOPUS  
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- ADC04 Cimrak, Ivan 100%: Error estimates for a semi-implicit numerical scheme solving the Landau-Lifshitz equation with an exchange field  
Lit. 23 zazn., 1 obr., 1 tab.  
In: IMA Journal of Numerical Analysis. - Vol. 25, No. 3 (2005), s. 611-634  
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- ADC05 Cimrak, Ivan 100%: Existence, regularity and local uniqueness of the solutions to the Maxwell-Landau-Lifshitz system in three dimensions  
Lit. 17 zazn.  
In: Journal of Mathematical Analysis and Applications. - Vol. 329, No. 2 (2007), s. 1080-1093  
*Ohlasy (5):*  
[o1] 2009 Ding, S. - Lin, J. Y.: Partially regular solution to Landau-Lifshitz-Maxwell equations in two dimensions. In: Journal of Mathematical Analysis and Applications, Vol. 351, No. 1, 2009, s. 291-310 - SCI ; SCOPUS  
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- ADC06 Cimrak, Ivan 50% - Melicher, Valdemar 50%: Sensitivity analysis framework for micromagnetism with application to the optimal shape design of magnetic random access memories  
Lit. 19 zazn., 5 obr., 3 tab.  
In: Inverse Problems. - Vol. 23, No. 2 (2007), s. 563-588

- ADC07 Cimrak, Ivan 100%: Error analysis of a numerical scheme for 3D Maxwell-Landau-Lifshitz system  
Lit. 9 zazn., 2 obr.  
In: Mathematical Methods in the Applied Sciences. - Vol. 30, No. 14, Spec. Issue SI (2007), s. 1667-1683
- ADC08 Cimrak, Ivan 90% - Van Keer, Roger 10%: Higher order regularity results in 3D for the Landau-Lifshitz equation with an exchange field  
Lit. 25 zazn., 6 tab.  
In: Nonlinear Analysis-Theory, Methods & Applications. - Vol. 68, No. 5 (2008), s. 1316-1331
- ADC09 Cimrak, Ivan 100%: A survey on the numerics and computations for the Landau-Lifshitz equation of micromagnetism  
Lit. 55 zazn., 16 obr.  
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- ADC10 Cimrak, Ivan 100%: Regularity properties of the solutions to the 3D Maxwell-Landau-Lifshitz system in weighted Sobolev spaces  
Lit. 23 zazn.  
In: Journal of Computational and Applied Mathematics. - Vol. 215, No. 2 (2008), s. 320-327  
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- ADC11 Melicher, Valdemar 45% - Cimrak, Ivan 45% - Van Keer, Roger 10%: Level set method for optimal shape design of MRAM core. Micromagnetic approach  
Lit. 10 zazn., 3 obr., 1 tab.  
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[HMM 2007 : Hysteresis and Modeling Micromagnetics : International Symposium. 6th, Naples, 4.-6.6.2007]
- ADC12 Sergeant, Peter 30% - Cimrak, Ivan 30% - Melicher, Valdemar 30% - Dupre, Luc 5% - Van Keer, Roger 5%: Adjoint variable method for the study of combined active and passive magnetic shielding

Lit. 13 zázň., 7 obr., 1 tab.

In: Mathematical Problems in Engineering. - (2008), Art. No. 369125, s. 1-15

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ADC13 Cimrák, Ivan 100%: Convergence result for the constraint preserving mid-point scheme for micromagnetism  
Lit. 17 zázň.

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[o1] 2010 Jeong, D. - Kim, J.: A Crank-Nicolson scheme for the Landau-Lifshitz equation without damping.

In: Journal of Computational and Applied Mathematics, Vol. 234, No. 2, 2010, s. 613-623 - SCI ; SCOPUS

ADC14 Durand, Stephane 40% - Cimrák, Ivan 40% - Sergeant, Peter 20%: Adjoint variable method for time-harmonic Maxwell equations

Lit. 10 zázň., 3 obr., 1 tab.

In: COMPEL-The International Journal for Computation and Mathematics in Electrical and Electronic Engineering. - Vol. 28, No. 5 (2009), s. 1202-1215

[OIPE 2008 : Optimization and Inverse Problems in Electromagnetism : International Workshop. 10th, Ilmenau, 14.-17.9.2008]

*Ohlasy (1):*

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ADC15 Cimrák, Ivan 50% - Melicher, Valdemar 50%: Determination of precession and dissipation parameters in micromagnetism

Lit. 13 zázň., 4 obr.

In: Journal of Computational and Applied Mathematics. - Vol. 234, No. 7, Spec. Iss. (2010), s. 2239-2249

[ACOMEN 2008 : Advanced Computational Methods in Engineering : International Conference. 4th, Liege, 26.-28.5.2008]

POZNÁMKA: Vyšlo aj - Proceedings of ACOMEN 2008 [elektronický zdroj]. - Liege : University, 2008. - nestr. [S. 1-11] [CD-ROM]. -

*Ohlasy (1):*

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ADC16 Cimrák, Ivan 100%: Analysis of the bounded variation and the G regularization for nonlinear inverse problems

Lit. 23 zázň.

In: Mathematical Methods in the Applied Sciences. - Vol. 33, No. 9 (2010), s. 1102-1111

ADC17 Cimrák, Ivan 90% - Van Keer, Roger 10%: Level set method for the inverse elliptic problem in nonlinear electromagnetism

Lit. 25 zázň., 12 obr.

In: Journal of Computational Physics. - Vol. 229, No. 24 (2010), s. 9269-9283

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ADC18 Durand, Stephane 25% - Cimrák, Ivan 25% - Sergeant, Peter 25% - Abdallh, Ahmed 25%: Analysis of a nondestructive evaluation technique for defect characterization in magnetic materials using local magnetic measurements

Lit. 14 zázň., 11 obr., 4 tab.

In: Mathematical Problems in Engineering. - (2010), Art. No. 574153

ADC19 Cimrák, Ivan 100%: Inverse thermal imaging in materials with nonlinear conductivity by material and shape derivative method

Lit. 26 zázň., 6 obr.

In: Mathematical Methods in the Applied Sciences. - Vol. 34, No. 18 (2011), s. 1203-1217

ADC20 Cimrák, Ivan 40% - Gusenbauer, M. 40% - Schrefl, T. 20%: Modelling and simulation of processes in microfluidic devices for biomedical applications

Lit. 18 zázň., 8 obr., 3 tab.

In: Computers and Mathematics with Applications. - Vol. 64, No. 3 (2012), s. 278-288

[BIOMATH 2011 : Mathematical Methods and Models in Biosciences and School for Young Scientists : International Conference. Sofia, 15.-18.6.2011]

ADC21 Cimrák, Ivan 50% - Melicher, Valdemar 50%: Mixed Tikhonov regularization in Banach spaces based on domain decomposition

Lit. 20 zázň., 8 obr., 2 tab.

In: Applied Mathematics and Computation. - Vol. 218, No. 23 (2012), s. 11583-11596

ADC22 Cimrák, Ivan 100%: Material and shape derivative method for quasi-linear elliptic systems with applications in inverse electromagnetic interface problems

Lit. 32 zázň., 9 obr.

In: SIAM Journal on Numerical Analysis. - Vol. 50, No. 3 (2012), s. 1086-1110

#### **ADF Vedecké práce v domácich nekarentovaných časopisoch**

ADF01 Cimrák, Ivan 100%: Comparison of Broyden and Newton methods for solving nonlinear parabolic equations

In: Journal of Electrical Engineering. - Vol. 52, No. 10/s (2001), s. 48-52

*Ohlasy (1):*

[o1] 2007 Ramos, J. I.: Numerical methods for nonlinear second-order hyperbolic partial differential equations. II - Rothe's techniques for 1-D problems. In: Applied Mathematics and Computation, Vol. 190, No. 1, 2007, s. 804-832 - SCI ; SCOPUS

#### **AFC Publikované príspevky na zahraničných vedeckých konferenciách**

AFC01 Cimrák, Ivan 50% - Slodička, Marián 50%: A second order approximation scheme for the micromagnetic Landau-Lifshitz equation

In: Mathematical and Computer Modelling in Science and Engineering. - Praha : České vysoké učení technické, 2003. - S. 75-79. - ISBN 80-7015-912-X

[Mathematical and Computer Modelling in Science and Engineering : International Conference. Prague, 27.-30.1.2003]

AFC02 Slodička, Marián 50% - Cimrák, Ivan 50%: Improved error estimates for a Maxwell-Landau-Lifshitz system

In: PAMM - Proceedings in Applied Mathematics and Mechanics, Vol. 4, No. 1 [elektronický zdroj]. - Weinheim : Wiley-VCH, 2004. - S. 71-74 [online]

[GAMM 2004 : Annual Meeting. 75th, Dresden, 21.-27.3.2004]

URL: <http://onlinelibrary.wiley.com/doi/10.1002/pamm.200410018/pdf>

- AFC03 Cimrák, Ivan 100%: Error analysis of a numerical scheme solving 3D Maxwell-Landau-Lifshitz system of ferromagnetism  
Recenzované  
In: ICNAAM 2005. - Weinheim : Wiley, 2005. - S. 842-845. - ISBN 3-527-40652-2  
[ICNAAM 2005 : International Conference on Numerical Analysis and Applied Mathematics. 10th, Rhodes, 16.-20.9.2005]
- AFC04 Cimrák, Ivan 100%: Analysis of the 3D Maxwell-Landau-Lifshitz system of ferromagnetism  
In: Third International Conference on Advanced Computational Methods in Engineering [elektronický zdroj]. - Ghent : University, 2005. - Art. No. 098, s. 1-10 [CD-ROM]  
[ACOMEN 2005 : Advanced Computational Methods in Engineering : International Conference. 3rd, Ghent, 30.5.-2.6.2005]
- AFC05 Cimrák, Ivan 50% - Melicher, Valdemar 50%: The Landau-Lifshitz model for shape optimization of MRAM memories  
In: PAMM - Proceedings in Applied Mathematics and Mechanics, Vol. 6, No. 1 [elektronický zdroj]. - Weinheim : Wiley-VCH, 2006. - S. 23-26 [online]  
[GAMM 2006 : Annual Meeting, 77th, Berlin, 27.-31.3.2006]  
URL: <http://onlinelibrary.wiley.com/doi/10.1002/pamm.200610007/pdf>
- AFC06 Cimrák, Ivan : Some applications of the adjoint variable method in electromagnetic optimization and inverse problems  
Lit. 7 zázň., 3 obr.  
In: APPOPT 2008 [elektronický zdroj]. - Cali : University of Valle, 2008. - S. 1-6 [CD-ROM]  
[APPOPT 2008 : Approximation and Optimization in the Caribbean : International Conference. 9th, San Andrés, 2.-7.3.2008]
- AFC07 Cimrák, Ivan 50% - Durand, Stephane 50%: The adjoint variable method in inverse electromagnetic shielding problem  
In: OIPE 2008 : 10th Workshop on Optimization and Inverse Problems in Electromagnetism. - Ilmenau : Technische Universität, 2008. - S. 188-189  
[OIPE 2008 : Optimization and Inverse Problems in Electromagnetism : International Workshop. 10th, Ilmenau, 14.-17.9.2008]
- AFC08 Cimrák, Ivan 100%: Reconstruction of the discontinuities in the parameters of quasi-linear elliptic problems  
Recenzované  
Lit. 6 zázň.  
In: Proceedings of the 2009 International Conference on Computational and Mathematical Methods in Science and Engineering, Vol. I. - [Gijón] : CMMSE, 2009. - S. 282-287. - ISBN 978-84-612-9727-6  
[CMMSE 2009 : Computational and Mathematical Methods in Science and Engineering : International Conference. 9th, Gijón, 30.6.-3.7.2009]
- AFD Publikované príspevky na domácich vedeckých konferenciách**
- AFD01 Cimrák, Ivan 100%: Numerical solution of degenerate convection-diffusion problem using Broyden scheme  
In: ALGORITMY 2002 : Proceedings of contributed papers and posters. - Bratislava : Slovak University of Technology, 2002. - S. 14-22. - ISBN 80-227-1750-9  
[ALGORITMY 2002 : Conference on Scientific Computing. 16th, Vysoké Tatry-Podbanské, 8.-13.9.2002]  
*Ohlasy (2):*  
[o1] 2005 Koleva, M. N.: Comparison of a Rothe-two grid method and other numerical schemes for solving semilinear parabolic equations. In: Numerical Analysis and its Applications : Lecture Notes in Computer Science ; Vol. 3401. Berlin :Springer, 2005, S. 352-359 - CPCI-S ; SCOPUS

[o1] 2009 Koleva, M. N. - Vulkov, L. G.: A two-Grid approximation of an interface problem for the nonlinear poisson-Boltzmann equation. In: Numerical Analysis and its Applications : Lecture Notes in Computer Science ; Vol. 5434. Berlin :Springer, 2009, S. 369-376 - CPCI-S ; SCOPUS

AFD02 Cimrák, Ivan 50% - Melicher, Valdemar 50%: Mixed regularization method for image restoration

Lit. 10 zázň., 4 obr.

In: ALGORITMY 2009 : Proceedings of contributed papers and posters. - Bratislava : Slovak University of Technology, 2009. - S. 226-235. - ISBN 978-80-227-3032-7

[ALGORITMY 2009 : Conference on Scientific Computing. 18th, Vysoké Tatry-Podbanské, 15.-20.3.2009]

AFD03 Cimrák, Ivan 100%: Interface problems for quasi-linear elliptic equations by material and shape derivative methods

Recenzované

Lit. 17 zázň., 5 obr.

In: ALGORITMY 2012. - Bratislava : STU, 2012. - S. 53-64. - ISBN 978-80-227-3742-5

[ALGORITMY 2012 : Conference on Scientific Computing. 19th, Vysoké Tatry-Podbanské, 9.-14.9.2012]

### **DAI Dizertačné a habilitačné práce**

DAI01 Cimrák, Ivan 100%: On the Landau-Lifshitz equation of ferromagnetism. - Ghent : [s.n.], 2005. - 179 s.

Doktorandská dizertačná práca (PhD.) - Ghent University, Ghent, 2005

Lit. 87 zázň.

*Ohlasy (2):*

[o1] 2009 De La Hoz, F. - Garcia-Cervera, C. J. - Vega, A. L.: A numerical study of the self-similar solutions of the Schrödinger map. In: SIAM Journal on Applied Mathematics, Vol. 70, No. 4, 2009, s. 1047-1077 - SCI ; SCOPUS

[o1] 2012 Pradhan, N. - Das, K. - De, D.: Diverse clocking strategy in MQCA. In: 1st International Conference on Recent Advances in Information Technology : RAIT-2012. Los Alamitas : IEEE, 2012, S. 771-775 - SCOPUS

### **Štatistika kategórií (Zázňamov spolu: 36):**

ACB Vysokoškolské učebnice vydané v domácich vydavateľstvách (1)

ADC Vedecké práce v zahraničných karentovaných časopisoch (22)

ADF Vedecké práce v domácich nekarentovaných časopisoch (1)

AFC Publikované príspevky na zahraničných vedeckých konferenciách (8)

AFD Publikované príspevky na domácich vedeckých konferenciách (3)

DAI Dizertačné a habilitačné práce (1)

### **Štatistika ohlasov (45):**

[o1] Citácie v zahraničných publikáciách registrované v citačných indexoch (45)

6.6.2013