



Ing. Ladislav Falat

doktorand (do 30.09.2009)

kontakt

Ústav materiálového výskumu SAV
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CURRICULUM

- 2006-2009 PhD študent na ÚMV SAV Košice, Oddelenie difúzných a transformačných procesov v kovových systémoch, dizertačná práca: Microstructure and creep of dissimilar α/γ weld-joints, odbor: 5.2.26 Materiály
- 2001-2004 Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Nemecko
- 1996-2001 HF TU v Košiciach, Katedra materiálového inžinierstva
- 1992-1996 Gymnázium Šrobárova 1 v Košiciach, zameranie: prírodné vedy

JAZYKOVÉ ZNALOSTI

- Anglický jazyk- pokročilý, Nemecký jazyk- pokročilý

VEDECKÉ AKTIVITY

- Kovové žiarupevné materiály a ich zvarové spoje (pre energetický priemysel)
- štúdium mechanických vlastností kovových materiálov (pevnosť, plasticita, tvrdosť, creep)
- fraktografická analýza (mechanizmy a mikromechanizmy porušovania)
- štruktúrna analýza (svetelná optická metalografia, REM, EDX, TEM, RTG-difrakcia)

PEDAGOGICKÉ AKTIVITY

PROJEKTY (KOORDINÁTOR, SPOLURIEŠITEĽ)

spoluriešiteľ

- Vplyv parametrov žihania na mikroštruktúru a vlastnosti heterogénnych zvarových spojov a ohybov moderných ocelí, VEGA č.2/7197/27, 2007- 2009
- Zvariteľnosť novej generácie žiarupevných ocelí pre elektrárne s vysokou účinnosťou, APVV-99-045105, 2006-2009
- Precipitačné procesy a skrehovanie moderných 9-12 ocelí a ich zvarových spojov, COST-Action 536, 2005- 2009
- Charakteristika materiálov pre predikciu zvyškovej životnosti komponentov elektrární, COST-Action 538, 2005-2008
- Termodynamická analýza binárnych a ternárnych systémov s bórom, VEGA č. 2/6207/26, 2006-2008

ZAHRANIČNÉ POBYTY - dlhodobé

- 2001- 2004 Max-Planck-Institut für Eisenforschung GmbH, Düsseldorf, Nemecko

ZAHRANIČNÉ POBYTY - krátkodobé

October 26-28, 2008 Training School „COST 536“, Lanzarote, Španielsko

ČLENSTVÁ

- **Verein Deutscher Eisenhüttenleute (VDEh) 2001-2004**

OCENENIA

- **1.miesto** v VII ročníku študentskej vedeckej a odbornej konferencie **METALURGIA 2001** v odbornej sekcii SPRACOVANIE MATERIÁLOV
- **Cena generálneho manažera pre výskum a vývoj U.S. Steel Košice, s.r.o.** za najlepšiu Študentskú vedeckú prácu, ktorá má priamy súvis s riešením problémov U.S. Steel Košice, s.r.o.
- **Medaila Hutníckej fakulty** za výborné študijné výsledky počas inžinierskeho štúdia

POČET PUBLIKÁCIÍ: celkovo 6 zahraničných CC-publikácií

POČET CITÁCIÍ: celkovo 30 citácií v zahraničných CC-publikáciách

VYBRANÉ PUBLIKÁCIE – MPIE Düsseldorf

- 1) **L. Falat**, A. Schneider, G. Sauthoff and G. Frommeyer: Mechanical properties of Fe–Al–M–C (M=Ti, V, Nb, Ta) alloys with strengthening carbides and Laves phase. *Intermetallics* (Impact factor: **2.034**), Volume 13, Issue 12, December 2005, Pages 1256-1262
- 2) A. Schneider, **L. Falat**, G. Sauthoff and G. Frommeyer: Microstructures and mechanical properties of Fe₃Al-based Fe–Al–C alloys. *Intermetallics* (Impact factor: **2.034**), Volume 13, Issue 12, December 2005, Pages 1322-1331
- 3) D. Risanti, J. Deges, **L. Falat**, S. Kobayashi, J. Konrad, M. Palm, B. Pöter, A. Schneider, C. Stallybrass and F. Stein: Dependence of the brittle-to-ductile transition temperature (BDTT) on the Al content of Fe–Al alloys. *Intermetallics* (Impact factor: **2.034**), Volume 13, Issue 12, December 2005, Pages 1337-1342
- 4) A. Schneider, **L. Falat**, G. Sauthoff and G. Frommeyer: Constitution and microstructures of Fe–Al–M–C (M=Ti, V, Nb, Ta) alloys with carbides and Laves phase. *Intermetallics* (Impact factor: **2.034**), Volume 11, Issue 5, May 2003, Pages 443-450

VYBRANÉ PUBLIKÁCIE – ÚMV SAV Košice

- 5) Juraj Blach, **Ladislav Falat**, Peter Ševc: Fracture characteristics of thermally exposed 9Cr–1Mo steel after tensile and impact testing at room temperature. *Engineering Failure Analysis* (Impact factor: **0.441**), Volume 16, Issue 5, July 2009, Pages 1397-1403
- 6) **L. Falat**, A. Výrostková, V. Homolová, M. Svoboda: Creep deformation and failure of E911/E911 and P92/P92 similar weld-joints. *Engineering Failure Analysis* (Impact factor: **0.441**), Volume 16, Issue 7, October 2009, Pages 2114-2120

Zoznam ohlasov v CC-publikáciách (výpis z www.sciencedirect.com)

- k publikácii 1)

1. **Ab initio calculation of the BCC Fe–Al–Mo (Iron–Aluminum–Molybdenum) phase diagram: Implications for the nature of the τ_2 phase**
Calphad, Volume 33, Issue 3, September 2009, Pages 576-583
Ney Sodré, Pablo Guillermo Gonzales-Ormeño, Helena Maria Petrilli, Cláudio Geraldo Schön
2. **Precipitation in ductile Fe–18Al–5Cr alloys with additions of Mo, W and C and effects on high-temperature strength**
Intermetallics, Volume 17, Issue 6, June 2009, Pages 404-413
D.G. Morris, M.A. Muñoz-Morris, I. Gutierrez-Urrutia, L.M. Requejo
- 3.) **Microstructure and mechanical properties of directionally solidified Fe–Al–Nb eutectic**
Intermetallics, Volume 16, Issue 10, October 2008, Pages 1212-1218
Srdjan Milenkovic, Martin Palm
- 4.) **High temperature creep behaviour of an FeAl intermetallic strengthened by nanoscale oxide particles**
International Journal of Plasticity, Volume 24, Issue 7, July 2008, Pages 1205-1223
D.G. Morris, I. Gutierrez-Urrutia, M.A. Muñoz-Morris
- 5.) **Design of martensitic/ferritic heat-resistant steels for application at 650 °C with supporting thermodynamic modelling**
Materials Science and Engineering: A, Volume 477, Issues 1-2, 25 March 2008, Pages 334-343
V. Knežević, J. Balun, G. Sauthoff, G. Inden, A. Schneider
- 6.) **In-situ precipitation of Al₂O₃ and κ -Fe₃AlC_{0.5} in iron aluminides through spark plasma sintering: Microstructures and mechanical properties**
Intermetallics, Volume 15, Issue 12, December 2007, Pages 1650-1658
M. Zadra, F. Casari, I. Lonardelli, G. Ischia, A. Molinari
- 7.) **Microstructure and mechanical properties of Fe₃Al-based alloys with strengthening boride precipitates**
Intermetallics, Volume 15, Issue 9, September 2007, Pages 1172-1182
R. Krein, A. Schneider, G. Sauthoff, G. Frommeyer
- 8.) **Strengthening at high temperatures by precipitates in Fe–Al–Nb alloys**
Intermetallics, Volume 14, Issues 10-11, October-November 2006, Pages 1204-1207
D.G. Morris, M.A. Muñoz-Morris, L.M. Requejo, C. Baudin
- 9.) **New iron–aluminium alloy with thermally stable coherent intermetallic nanoprecipitates for enhanced high-temperature creep strength**
Acta Materialia, Volume 54, Issue 9, May 2006, Pages 2335-2341
D.G. Morris, M.A. Muñoz-Morris, L.M. Requejo

- k publikácii 2)

- 10.) **Effect of C, Ti, Zr and B alloying on fracture mechanisms in hot-rolled Fe–40 (at.%)Al**
Intermetallics, Volume 17, Issue 9, September 2009, Pages 680-687
P. Haušild, J. Siegl, P. Málek, V. Šíma

- 11.) **Precipitation in ductile Fe–18Al–5Cr alloys with additions of Mo, W and C and effects on high-temperature strength**
Intermetallics, Volume 17, Issue 6, June 2009, Pages 404-413
D.G. Morris, M.A. Muñoz-Morris, I. Gutierrez-Urrutia, L.M. Requejo
- 12.) **In-situ precipitation of Al₂O₃ and κ -Fe₃AlC_{0.5} in iron aluminides through spark plasma sintering: Microstructures and mechanical properties**
Intermetallics, Volume 15, Issue 12, December 2007, Pages 1650-1658
M. Zadra, F. Casari, I. Lonardelli, G. Ischia, A. Molinari
- 13.) **Microstructure and mechanical properties of Fe₃Al-based alloys with strengthening boride precipitates**
Intermetallics, Volume 15, Issue 9, September 2007, Pages 1172-1182
R. Krein, A. Schneider, G. Sauthoff, G. Frommeyer
- 14.) **Effect of composition on hydrogen permeation in Fe–Al alloys**
Intermetallics, Volume 15, Issue 1, January 2007, Pages 17-19
U. Prakash, N. Parvathavarthini, R.K. Dayal

- k publikácii 3)

- 15.) **Effect of C, Ti, Zr and B alloying on fracture mechanisms in hot-rolled Fe–40 (at.%)Al**
Intermetallics, Volume 17, Issue 9, September 2009, Pages 680-687
P. Haušild, J. Siegl, P. Málek, V. Šíma
- 16.) **Precipitation in ductile Fe–18Al–5Cr alloys with additions of Mo, W and C and effects on high-temperature strength**
Intermetallics, Volume 17, Issue 6, June 2009, Pages 404-413
D.G. Morris, M.A. Muñoz-Morris, I. Gutierrez-Urrutia, L.M. Requejo
- 17.) **The influence of Cr and B additions on the mechanical properties and oxidation behaviour of L21-ordered Fe–Al–Ti-based alloys at high temperatures**
Acta Materialia, Volume 56, Issue 10, June 2008, Pages 2400-2405
Ronny Krein, Martin Palm
- 18.) **Microstructure and mechanical properties of Fe₃Al-based alloys with strengthening boride precipitates**
Intermetallics, Volume 15, Issue 9, September 2007, Pages 1172-1182
R. Krein, A. Schneider, G. Sauthoff, G. Frommeyer
- 19.) **Microstructure and mechanical behaviour of a Fe–Ni–Al alloy**
Materials Science and Engineering: A, Volume 444, Issues 1-2, 25 January 2007, Pages 236-241
M.A. Muñoz-Morris, D.G. Morris

- k publikácii 4)

- 20.) **Effect of C, Ti, Zr and B alloying on fracture mechanisms in hot-rolled Fe–40 (at.%)Al**
Intermetallics, Volume 17, Issue 9, September 2009, Pages 680-687
P. Haušild, J. Siegl, P. Málek, V. Šíma
- 21.) **Development of creep-resistant iron aluminides**
Materials Science and Engineering: A, Volume 462, Issues 1-2, 25 July 2007, Pages 45-52
D.G. Morris, M.A. Muñoz-Morris

- 22.) **Anelastic relaxation in ternary Fe–Al–Me alloys: Me Co, Cr, Ge, Mn, Nb, Si, Ta, Ti, Zr**
Materials Science and Engineering: A, Volume 442, Issues 1-2, 20 December 2006, Pages 92-98
 I.S. Golovin
- 23.) **New iron–aluminium alloy with thermally stable coherent intermetallic nanoprecipitates for enhanced high-temperature creep strength**
Acta Materialia, Volume 54, Issue 9, May 2006, Pages 2335-2341
 D.G. Morris, M.A. Muñoz-Morris, L.M. Requejo
- 24.) **Mechanical properties of Fe–Al–M–C (M=Ti, V, Nb, Ta) alloys with strengthening carbides and Laves phase**
Intermetallics, Volume 13, Issue 12, December 2005, Pages 1256-1262
 L. Falat, A. Schneider, G. Sauthoff, G. Frommeyer
- 25.) **Optimisation of precipitation for controlling recrystallisation of wrought Fe₃Al based alloys**
Intermetallics, Volume 13, Issue 12, December 2005, Pages 1296-1303
 S. Kobayashi, S. Zaefferer, A. Schneider, D. Raabe, G. Frommeyer
- 26.) **Orientation relationship between a ferritic matrix and κ -phase (Fe₃AlC_x) precipitates formed during metal dusting of Fe-15Al**
Intermetallics, Volume 13, Issue 12, December 2005, Pages 1332-1336
 A. Schneider, J. Zhang
- 27.) **Phase equilibria among α -Fe(Al, Cr, Ti), liquid and TiC and the formation of TiC in Fe₃Al based alloys**
Acta Materialia, Volume 53, Issue 14, August 2005, Pages 3961-3970
 Satoru Kobayashi, André Schneider, Stefan Zaefferer, Georg Frommeyer, Dierk Raabe
- 28.) **A study of precipitation in DO₃ ordered Fe–Al–Nb alloy**
Intermetallics, Volume 13, Issue 8, August 2005, Pages 862-871
 D.G. Morris, L.M. Requejo, M.A. Muñoz-Morris
- 29.) **The high-temperature strength of some Fe₃Al alloys**
Acta Materialia, Volume 52, Issue 9, 17 May 2004, Pages 2827-2836
 D. G. Morris, M. A. Muñoz-Morris, C. Baudin
- 30.) **Interfacial microstructure characterisation of molten Cu–Ti and an iron-based aluminide**
Journal of Alloys and Compounds, Volume 366, Issues 1-2, 10 March 2004, Pages 171-181
 M. Brochu, M. Pugh, R. A. L. Drew

Vystúpenia na konferenciách

1. **L. Falat**, A. Výrostková, J. Pecha, M. Svoboda: Mikroštruktúrne a creepové charakteristiky zvarových spojov progresívnych žiarupevných ocelí pre energetický priemysel. In: SEMDOK 2008 Žilina, University of Žilina, 2008, s. 85-88.
2. **L. Falat**, A. Výrostková, J. Pecha, M. Svoboda: Microstructure and creep behaviour of dissimilar ferritic/austenitic transition weld-joint with Ni-based filler metal. In: Kotle energetická zařízení a kogenerace: 17. ročník odbornej konferencie s medzinárodnou účasťou, 17.-19. 03. 2008, Brno.