

September 2013

CURRICULUM VITAE - Birger Karlsson

Name: Birger Karlsson
Citizen number: 411011-6151
Born: Lidköping, SE, 1941-10-11
Title: Professor
Address (private): Postmästareg. 25, SE-431 66 Mölndal, Sweden
Work: Department of Materials and Manufacturing Technology,
Chalmers University of Technology, SE-412 96 Göteborg, Sweden
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Education, employments etc.

Civiling.	- Engineering Physics, Chalmers University of Technology	1966
Tekn.lic.	- Engineering Metals, Chalmers University of Technology	1970
Tekn. Dr.	- Engineering Metals, Chalmers University of Technology	1974
Docent	- Engineering Metals, Chalmers University of Technology	1974
Assoc. prof .	- Engineering Metals, Chalmers Univ. Technology	1974-1992
Served as substitute professor,	Engineering Metals, Chalmers Univ. of Technology,	1975-1986
Researcher, 50%,	Engineering Metals, Chalmers Univ. Technology.	1985-1992
Professor (permanent) -	Materials Technology, Chalmers Univ. Tech.	1992-2011
Professor emeritus,	Chalmers Univ. Tech.	2012-

- Served in various positions within Chalmers University of Technology (director of master programme mechanical engineering, department head, expert committees, international master programmes – director 1989-2005, etc.)
- Served as scientific expert for the Swedish National Scientific Boards (STU, NUTEK, STUF, TFR)
- Secretary General of The Royal Academy of Arts and Sciences in Gothenburg since 1997 (deputy secretary 1990-96).
- Long experience in conducting research. Regular contracts from STU, STUF, TFR, NUTEK, VINNOVA, VR etc. since ca. 1970. European research programmes since 1986.

Main research activities have concerned mechanical properties of engineering materials, fatigue, fracture mechanics, phase transformations/diffusion, powder metallurgy, quantitative microscopy, quantitative fractography, materials selection in mechanical design and computerized materials selection, failure analysis.

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In total more than 180 scientific publications have been produced.

29 journal and 19 referred conference papers produced during period 2005-2013 (see attached list).

Excerpt from Chalmers Publication Library (CPL):

Karlsson, Birger

2013

Cvetkovski, K. ; Ahlström, J. ; Karlsson, B. (2013). Influence of short heat pulses on properties of martensite in medium carbon steels. *Materials Science and Engineering: A*. 561 s. 321-328. [[Nr. 165596](#)]

2012

Dahlström, G. ; Karlsson, B. (2012). FÖR HJÄRTAT OCH SNILLET - om Kungl. Samhällets emblem. *KVVS Årsbok 2012*, pp. 119-128. s. 119-128. [[Nr. 179805](#)]

Dalaei, K. ; Karlsson, B. (2012). Influence of shot peening on fatigue durability of normalized steel subjected to variable amplitude loading. *International journal of fatigue*. 38 (May 2012) s. 75-83. [[Nr. 152644](#)]

Dalaei, K. ; Persson, C. ; Karlsson, B. (2012). Stability of Residual Stresses Created by Shot Peening in Monotonic Loading and at the Presence of Load Reversals - Experiments and Modeling. *Journal of Engineering Materials and Technology*. 134 (2) s. 021010-1 - 021010-9. [[Nr. 156361](#)]

2011

- Cao, Y. ; Ahlström, J. ; Karlsson, B.** (2011). Mechanical Behaviour of a Rephosphorized Steel for Car Body Applications — Effects of Temperature, Strain Rate and Pre-treatment . *Journal of Engineering Materials and Technology*. 133 s. 021019-1 - 021019-11. [[Nr. 138303](#)]
- Cvetkovski, K. ; Ahlström, J. ; Karlsson, B.** (2011). Monotonic and cyclic deformation of a high silicon pearlitic wheel steel , *Wear. 8th Conference on Contact Mechanics and Wear of Rail/Wheel System, Florence, Italy 2009*. 271 (1-2) s. 382-387. [[Nr. 128583](#)]
- Cvetkovski, K. ; Ahlström, J. ; Karlsson, B.** (2011). Thermal degradation of pearlitic steels: influence on mechanical properties including fatigue behaviour. *Materials Science and Technology*. 27 (3) s. 648-654 . [[Nr. 128837](#)]
- Dalaei, K. ; Karlsson, B.** (2011). Influence of overloading on fatigue durability and stability of the residual stresses in shot peened normalized steel. *Materials Science and Engineering A*. 528 s. 7323-7330. [[Nr. 143216](#)]
- Dalaei, K. ; Höijer, J. ; Åkerström, G. et al.** (2011). Influence of shot peening on fatigue durability of decarburized spring steels, *Proceeding of international shot peening conference (ICSP 11)*. s. 183-188. ISBN/ISSN: 978-0-615-49723-5 [[Nr. 146673](#)]
- Dalaei, K. ; Karlsson, B. ; Svensson, L-E.** (2011). Stability of shot peening induced residual stresses and their influence on fatigue lifetime. *Materials Science and Engineering A*. 528 (3) s. 1008-1015. [[Nr. 129346](#)]
- Hosseini, S. ; Karlsson, B. ; Vuoristo, T. et al.** (2011). Determination of Stresses and Retained Austenite in Carbon Steels by X-rays - A Round Robin Study . *Experimental Mechanics*. 51 s. 59-69. [[Nr. 121645](#)]
- Olsson, P. ; Jansson, P-Å. ; Johansson, L. et al.** (2011). Minnesteckningar över avlidna ledamöter 2010. Särtryck ur KVVVS Årsbok 2011. *Kungl. Vetenskaps- och Vitterhets-Samhället i Göteborg (KVVVS)*. [[Nr. 179809](#)]
- Temmel, C. ; Karlsson, B.** (2011). The bending fatigue strength of gears in isotropic 20NiMo10 steel in as-machined,

2010

- Ahlström, J. ; Cvetkovski, K. ; Karlsson, B. et al.** (2010). Short-time tempering kinetics of quench hardened pearlitic steels, *Conference proceedings ICTPMCS-2010, 31 May – 2 June 2010, Shanghai, China*. s. 6 pp. [[Nr. 128835](#)]
- Cvetkovski, K. ; Ahlström, J. ; Karlsson, B.** (2010). Thermal softening of fine pearlitic steel and its effect on the fatigue behaviour, *Procedia Engineering*. 2 (1) s. 541-545. [[Nr. 122748](#)]
- Dalaei, K. ; Karlsson, B. ; Svensson, L-E.** (2010). Stability of Residual stresses Created by Shot Peening of Pearlitic Steel and Their Influence on Fatigue Behaviour, *Procedia Engineering*. 2 (2) s. 613-622. [[Nr. 121545](#)]
- Hörnqvist, M. ; Karlsson, B.** (2010). Dynamic strain ageing and dynamic precipitation in AA7030 during cyclic deformation, *Procedia Engineering*. 2 (1) s. 265-273. [[Nr. 122749](#)]
- Schilke, M. ; Ahlström, J. ; Karlsson, B.** (2010). Low cycle fatigue and deformation behaviour of austenitic manganese steel in rolled and as-cast conditions, *Procedia Engineering*. 2 (1) s. 623-628. [[Nr. 122745](#)]

2009

- Ahlström, J. ; Karlsson, B.** (2009). Modified Railway Wheel Steels: Production and Evaluation of Mechanical Properties with Emphasis on Low-Cycle Fatigue Behavior. *Metallurgical and Materials Transactions A*. 40A s. 1557-1567. [[Nr. 95173](#)]
- Ahlström, J. ; Schilke, M. ; Karlsson, B.** (2009). Monotonic and cyclic deformation of medium and high strength rail steels, *Proceedings of 8th International Conference on Contact Mechanics and Wear of Rail/Wheel Systems, Centro Sviluppo Materiali S.p.A., Firenze, Italy*. 1 s. 3-5. ISBN/ISSN: 978-88-904370-0-7 [[Nr. 99037](#)]
- Ahlström, J. ; Karlsson, B.** (2009). Stiffness changes during fatigue of railway steels R8/R8T at ambient and subzero temperatures, *Proceedings of 8th International Conference on Contact Mechanics and Wear of Rail/Wheel Systems, Centro Sviluppo Materiali S.p.A., Firenze, Italy*. 1 s. 7-9. ISBN/ISSN: 978-88-904370-0-7 [[Nr. 99041](#)]
- Cvetkovski, K. ; Ahlström, J. ; Karlsson, B.** (2009). Monotonic and cyclic deformation of a high silicon pearlitic wheel steel, *Proceedings of 8th International Conference on Contact Mechanics and Wear of Rail/Wheel Systems, Centro Sviluppo Materiali S.p.A., Firenze, Italy*. 2 s. 557-563. ISBN/ISSN: 978-88-904370-0-7 [[Nr. 99043](#)]
- Dalaei, K. ; Karlsson, B. ; Svensson, L-E. et al.** (2009). An Investigation on Fracture Surfaces of Shot Blasted and As Forged Components in Constant and Variable Loading Fatigue, *Proceedings of the International Conference on Crack Paths (CP2009)*. Editor: European Structural Integrity Society. s. 233-243. [[Nr. 99034](#)]
- Hörnqvist, M. ; Karlsson, B.** (2009). Effect of heat treatment on the strain hardening behaviour of an Al-Zn-Mg alloy. *International Journal of Materials Research*. 100 (11) s. 1574 - 1581. [[Nr. 102711](#)]
- Knutson Wedel, M. ; Rychwalski, R. ; Rigdahl, M. et al.** (2009). Experiences of and Improvement of Writing Skills in a Lecture Based Course in Polymeric Materials, *Proceedings of the 5th International CDIO Conference, Singapore*. [[Nr. 94987](#)]
- Temmel, C. ; Karlsson, B. ; Leicht, V.** (2009). Bending fatigue of gear teeth of conventional and isotropic steels. *HTM Journal of Heat Treatment and Materials*. 64 (2) s. 80-88. [[Nr. 93193](#)]
- Temmel, C. ; Karlsson, B. ; Torresvoll, K. et al.** (2009). Investigation on Manganese Sulfide Inclusion Sizes in 50CrMo4 Steels by means of Fractography, Micrograph Analysis and Immersion Ultrasound. *Practical Metallography*. 46 (3) s. 123-136. [[Nr. 91775](#)]

2008

- Ahlström, J. ; Karlsson, B.** (2008). Low cycle fatigue behaviour of alternative steels for highly stressed rail components, *Proc. 6th Intern. Conf. on Low Cycle Fatigue (P.D. Portella, T. Beck, M. Okazaki - eds.)*, Deutscher Verband für Materialforschung och -prüfung (DVM), Berlin 2008. s. Pp. 747-752. [[Nr. 74073](#)]

Dalaei, K. ; Höijer, J. ; Åkerström, G. et al. (2008). Influence of decarburisation on the fatigue behaviour of shot peened spring steels, *Proc. 10th Intern. Conf. on Shot Peening (K. Tosha, ed.), Academy Common Meiji University, Tokyo, Sept. 2008.* s. 274-279. [[Nr. 74517](#)]

Hörnqvist, M. ; Karlsson, B. (2008). Influence of Heat Treatment on the Cyclic Deformation Properties of Aluminium Alloy AA7030. *Materials Science and Engineering.* A479 s. 345-355. [[Nr. 70164](#)]

Hörnqvist, M. ; Karlsson, B. (2008). Temperature and Strain Rate Effects on the Work Hardening of AA7030, *Aluminium Alloys (J. Hirsch, B. Skrotzki, G. Gottstein - eds.), Proc. 11th Intern. Conf. on Aluminium Alloys, Wiley-VCH GmbH, 2008.* Vol. II s. 1498-1503. ISBN/ISSN: 978-3-527-32367-8 [[Nr. 74514](#)]

Hörnqvist, M. ; Karlsson, B. ; Ahlström, J. (2008). Unloading stiffness of near fully pearlitic steel UIC-R8/R8T during cyclic plastic straining, *Proc. 6th Intern. Conf. on Low Cycle Fatigue (P.D. Portella, T. Beck, M. Okazaki - eds.), Deutsche Verband für Materialforschung und -prüfung (DVM), Berlin 2008 .* s. Pp. 487-492. [[Nr. 74070](#)]

Temmel, C. ; Karlsson, B. ; Ingesten, N-G. (2008). Fatigue Isotropy in Cross-Rolled, Hardened Isotropic-Quality Steel. *Metallurgical and Materials Transactions A.* 39A s. 1132-1144. [[Nr. 70224](#)]

Temmel, C. ; Karlsson, B. ; Ingesten, N-G. (2008). Fatigue crack initiation in hardened medium carbon steel due to manganese sulphide inclusion clusters. *Fatigue & Fracture of Engineering Materials & Structures.* 31 s. 466-477. [[Nr. 72777](#)]

2007

Dalaei, K. ; Temmel, C. ; Karlsson, B. et al. (2007). An investigation on machinability of low sulphur steel, *Metal cutting research conference.* [[Nr. 152646](#)]

Hosseini B., S. ; Temmel, C. ; Karlsson, B. et al. (2007). An In-Situ Scanning Electron Microscopy Study of the Bonding between MnS Inclusions and the Matrix during Tensile Deformation of Hot-Rolled Steels. *Metallurgical and Materials Transactions A.* 38A s. 982-989. [[Nr. 62177](#)]

Hörnqvist, M. ; Karlsson, B. (2007). Development of the unloading stiffness during cyclic plastic deformation of a high-strength aluminium alloy in different tempers. *International Journal of Materials Research.* 98 (11) s. 1115-1123. [[Nr. 62162](#)]

Skoglund, H. ; Knutson Wedel, M. ; Karlsson, B. (2007). Thermal Vacancy Hardening in Fe100-xAlx (28<x<40). *Intermetallics.* 15 (8) s. 1127-1131. [[Nr. 45035](#)]

Temmel, C. ; Karlsson, B. ; Ingesten, N-G. (2007). Quenching Cracks in Medium Carbon Steel Initiated at Manganese Sulfide Inclusions. *Härtereitechnische Mitteilungen.* 62 s. 236-242. [[Nr. 62181](#)]

2006

Ahlström, J. ; Karlsson, B. (2006). The fatigue properties of modified railway wheel steels as influenced by low temperature and grain size, *9th International Fatigue Congress, Atlanta 2006.* s. 10 pages. [[Nr. 25115](#)]

Hörnqvist, M. ; Karlsson, B. (2006). Temperature and Strain Rate Effects on the Dynamic Strain Ageing of AA7030, *Materials Science Forum .* 519-521 s. 883-888. [[Nr. 26407](#)]

Hörnqvist, M. ; Karlsson, B. (2006). Temperature and strain rate dependence of the dynamic strain ageing effect in an Al-Zn-Mg alloy. *Materials Science and Technology.* 22 (2) s. 213-222. [[Nr. 11117](#)]

Johansson, M. ; Hörnqvist, M. ; Karlsson, B. (2006). Influence of Temperature and Strain Rate on the Plastic Deformation of two Commercial High Strength Al Alloys, *Materials Science Forum.* 519-521 s. 841-845. [[Nr. 26408](#)]

Köppen, N. ; Ahlström, J. ; Karlsson, B. (2006). Static and Cyclic Behaviour of Near Fully Pearlitic Railway Steel - Influence of Temperature and Prestrain, *Proc. 9th International Fatigue Congress, Atlanta, May 2006.* s. 8 pages. [[Nr. 26409](#)]

Skoglund, H. ; Knutson Wedel, M. ; Karlsson, B. (2006). Diffusion of Al during hot consolidation of FeAl. *Acta Materialia.* 54 s. 3853-3861. [[Nr. 26405](#)]

Temmel, C. ; Karlsson, B. ; Ingesten, N-G. (2006). Comparison of Murakami Fatigue Limit with True Fatigue Strength of a Tested 42CrMo4 Steel, *Fatigue Damage VI Conference, USA.* [[Nr. 62180](#)]

Temmel, C. ; Karlsson, B. ; Ingesten, N-G. (2006). Fatigue Anisotropy in Cross-Rolled, Hardened Medium Carbon Steel due to MnS Inclusions. *Metallurgical and Materials Transactions A.* 37A (10) s. 2995-3008. [[Nr. 26406](#)]

2005

Ahlström, J. ; Karlsson, B. (2005). Fatigue behaviour of rail steel - a comparison between strain and stress controlled loading. *Wear.* 258 (7-8) s. 1187-1193. [[Nr. 12377](#)]

Ahlström, J. ; Karlsson, B. (2005). Low cycle fatigue behaviour of railway wheel steels including temperature effects , *Proceedings of 11th Intern. Conf. on Fracture, Torino, March 2005.* s. 6 pages. [[Nr. 11115](#)]

Hörnqvist, M. ; Karlsson, B. (2005). Dynamic strain ageing effects in an extruded AA 7030 alloy subjected to tensile deformation, *Proceedings of 11th Intern. Conf. on Fracture, Torino, March 2005 .* s. 6 pages. [[Nr. 11114](#)]

Krook, M. ; Recina, V. ; Karlsson, B. (2005). Material properties affecting the machinability of Inconel 718, *Superalloys 718, 625, 706 and Various Derivatives - TMS (The Minerals, Metals & Materials Society) , Ed. E.A. Lorca.* [[Nr. 11112](#)]

Niederhauser, S. ; Karlsson, B. (2005). Fatigue behaviour of Co-Cr clad steel plates for railway applications. *Wear.* 258 s. 1156-1164. [[Nr. 11107](#)]

Niederhauser, S. ; Karlsson, B. ; Sotkovszki, P. (2005). Microstructural Development in the Heat-Affected Zone of Laser-Clad Steel. *Zeitschrift für Metallkunde.* 96 s. 370-376. [[Nr. 11110](#)]