

## Papers

- D. Kulikov, L. Malerba and M. Hou, "On the binding energies and configurations of vacancy and copper-vacancy clusters in bcc Fe-Cu: a computational study", *Phil. Mag.* (2005), in press.
- L. Malerba, "Molecular dynamics simulations of displacement cascades in  $\alpha$ -Fe: a critical review", accepted for publication in *J. Nucl. Mater.*
- D.A. Terentyev, C. Lagerstedt, P. Olsson, K. Nordlund, J. Wallenius, C.S. Becquart and L. Malerba, "Effect of the interatomic potential on the features of displacement cascades in  $\alpha$ -Fe: a molecular dynamics study", accepted for publication in *J. Nucl. Mater.*
- A. Gusarov, L. Vermeeren, B. Brichard, R. van Nieuwenhove, A. Fernandez Fernandez, H. Ooms, M. Decréton, F. Berghmans, "In situ in-reactor testing of fusion materials and components", to be published in *Fusion Eng. Design*, 2005.
- D.A. Terentyev, A.V. Barashev and L. Malerba, "On the correlation between self-interstitial cluster diffusivity and irradiation-induced swelling in Fe-Cr alloys", submitted to *Phil. Mag. Lett.*
- P. Olsson, J. Wallenius, C. Domain, K. Nordlund and L. Malerba, "Two-band model of alpha prime phase formation in Fe-Cr", submitted to *Phys. Rev. B*.
- D.A. Terentyev, L. Malerba, R. Chakarova, K. Nordlund, P. Olsson, M. Rieth and J. Wallenius, "Displacement cascades in Fe-Cr: a molecular dynamics study", accepted for publication in *J. Nucl. Mater.*
- A. Möslang, E. Diegele, M. Klimiankou, R. Lässer, R. Lindau, E. Lucon, E. Materna-Morris, C. Petersen, R. Pippan, J.W. Rensman, M. Rieth, B. van der Schaaf, H.-C. Schneider and F. Tavassoli, "Towards reduced activation structural materials data for fusion DEMO reactors", *Nucl. Fusion* 45 (2005) 649–655.
- D.A. Terentyev, L. Malerba and M. Hou "In-cascade interstitial cluster formation in concentrated ferritic alloys with strong solute-interstitial interaction: a molecular dynamics study", *Nucl. Instr. and Meth. B* 228 (2005) pp. 156-162.
- A. F. Fernandez, B. Brichard, H. Ooms, R. Van Nieuwenhove, and F. Berghmans, "Gamma Dosimetry Using Red 4034 Harwell Dosimeters in Mixed Fission Neutrons and Gamma Environments", *IEEE Trans. On Nuclear Science*, Vol. 52, n° 2, p 505-509, 2005.
- E. Lucon, R.-W. Bosch, L. Malerba, S. Van Dyck, M. Decréton, "An Integrated Approach to Fusion Material Research at SCK•CEN", *Fusion Science and Technology*, Vol. 47, n°4, May 2005, pp. 895-900.
- D.A. Terentyev, L. Malerba and M. Hou, "Mobility of self-interstitial atom clusters in  $\alpha$ -Fe: a new molecular dynamics study", presented at the TMS Annual Meeting, Symposium on Microstructural Processes in Irradiated Materials, San Francisco (CA), 13-17 February 2005; paper to be submitted to *Phys. Rev. B*.
- B. Brichard, A. F. Fernandez, H. Ooms, F. Berghmans, M. Decréton, A. Tomashuk, S. Klyamkin, M. Zabezhaïlov, I. Nikolin, V. Bogatyryov, E. Hodgson, T. Kakuta, T. Shikama, T. Nishitani, A. Costley, G. Vayakis, "Radiation-hardening techniques of dedicated optical fibres used in plasma diagnostic systems" *Journal of Nuclear Materials* 329-333 (2004), pp. 1456-1460.
- J.-W. Rensman, E. Lucon, J. Boskeljon, J. van Hoepen, R. den Boef, P. ten Pierick, "Irradiation resistance of EUROFER97 at 300 °C up to 10 dpa", *Journal of Nuclear Materials* 329–333 (2004) 1113–1116.
- C. Domain, C. S. Becquart and L. Malerba, "Simulation of radiation damage in Fe alloys: an object kinetic Monte Carlo approach", *J. Nucl. Mater.* 335 (2004) 121.
- L. Malerba, D.A. Terentyev, P. Olsson, R. Chakarova and J. Wallenius, "Molecular dynamics simulation of displacement cascades in Fe-Cr alloys", *J. Nucl. Mater.* 329-333 (2004) pp. 1156-1160.

## Presentations

M. Decréton, E. Hodgson, H. Ooms, "In-reactor vacuum RIED experiment on sapphire", to be presented at the International Conference on Fusion Reactor Materials (ICFRM-12), Santa Barbara (CA, USA), December 5-9, 2005.

L. Sannen, M. Scibetta, S. van den Berghe, A. Leenaers, G. Verpoucke, "Thermal activated helium induced swelling of Beryllium irradiated up to fusion reactor relevant doses", to be presented (oral) at the 7<sup>th</sup> IEA international workshop on beryllium technology, Santa Barbara (CA, USA), 29 Nov. – 2 Dec. 2005 and as a poster at the ICFRM-12 Conference, Santa Barbara, December 5-9, 2005, to be later published in Journal of Nuclear Material.

M. Scibetta, E. Rabaglino, A. Pellettieri, L. Sannen, "Experimental Determination of Creep Properties of Beryllium Irradiated to Relevant Fusion Power Reactor Doses", to be presented (oral) at the 7<sup>th</sup> IEA international workshop on beryllium technology, Santa Barbara (CA, USA), 29 Nov. – 2 Dec. 2005 and as a poster at the ICFRM-12 Conference, Santa Barbara, December 5-9, 2005, to be later published in Journal of Nuclear Material.

R. Chaouadi, J.L. Puzzolante, E. Lucon, M. Scibetta, "On the Tearing Resistance of AISI-316L Austenitic Stainless Steel", to be presented at the International Conference on Fusion Reactor Materials (ICFRM-12), Santa Barbara (CA, USA), December 5-9, 2005, and to be published in J. Nucl. Mat. in 2006.

M. Van Uffelen, S. Geboers, P. Leroux, F. Berghmans, "SPICE modelling of a discrete COTS SiGe HBT up to MGy dose levels", Proceedings of the RADECS 2005 conference, Cap d'Agde, September 19-23, 2005.

D. Terentyev, L. Malerba, "Interaction between Interstitial Loops and Other Defects in Bcc-Fe", EUROMAT 2005, Prague, September 5-8, 2005.

R. Chaouadi, "Effect of plastic instability on the ductile crack resistance behaviour of 9%Cr-ferritic/martensitic steels", European Congress on Advanced Materials and Processes, Euromat-2005, Prague, 5-8 September, 2005.

M. Matijasevic and A. Almazouzi "Effect of the Composition on the Irradiation Damage Accumulation in Fe-Cr Model Alloys", EUROMAT 2005, Prague, September 5-8, 2005.

R.W. Bosch, A. Al Mazouzi, D. Sapundjiev, H. Dekien, "Development of a hot cell test set-up for liquid metal embrittlement (LME) studies in lead-lithium and lead-bismuth", EUROCORR 2005 Conference, Lisbon (Portugal), September 4-8, 2005.

E. Lucon, A. Al Mazouzi, R.-W. Bosch, L. Malerba, S. Van Dyck, M. Decréton, "An Integrated Approach to Fusion Material Research at SCK•CEN", presented at ICENES 2005, Brussels, 21-26 August 2005.

M. Van Uffelen, S. Geboers, P. Leroux, F. Berghmans, "High total dose gamma radiation assessment of commercially available SiGe Heterojunction Bipolar Transistors" (invited paper), Photonics for Space Environments X conference, San Diego, August 1-4, 2005, Proceedings SPIE Vol. 5897, 2005.

I. Uytendhouwen, "BR2 irradiation campaign: IBeTuTS", presented at PhD seminar, IWV, FZJ, 29 June 2005, Jülich, Germany.

E. Lucon, "The European Effort towards the Development of Demo Structural Material: Irradiation Behaviour of the European Reference RAFM Steel EUROFER", presented at the 7<sup>th</sup> International Symposium on Fusion Nuclear Technology, ISFNT-7, Tokyo (Japan), 23-27 May 2005, to be published in Fusion Engineering Design.

C. Grisolia, S. Rosanvallon, P. Coad, N. Bekris, J. Braet, D. Brennan, B. Brichard, G. Counsell, "JET contribution to ITER", 7<sup>th</sup> International Symposium on Fusion Nuclear Technology, Tokyo, May 22 - 27, 2005, to be published in Fusion Engineering and Design, 2006.

A. F. Fernandez, S. O'Keeffe, C. Fitzpatrick, B. Brichard, F. Berghmans, E. Lewis, "Gamma dosimetry using commercial PMMA optical fibres for nuclear environments", 17<sup>th</sup> conference on Optical Fibre Sensors (OFS-17), Bruges, 23-27 May 2005, SPIE Proceedings vol. 5855, p 499-502, 2005.

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R. J. Maier, W. MacPherson, J. Barton, J. Jones, S. McCulloch, A. F. Fernandez, L. Zhang, X. Chen, "Fibre Bragg gratings of type I in SMF-28 and B/Ge fibre and type IIA B/Ge fibre under gamma radiation up to 0.5 MGy", 17<sup>th</sup> conference on Optical Fibre Sensors (OFS), Bruges, 23-27 May 2005, SPIE Proceedings vol. 5855, p 511-514, 2005.

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L. Vermeeren, "RIEMF/TIEMF investigation by irradiation of copper and stainless steel core MI cables in the BR2 reactor", 8<sup>th</sup> meeting of the ITPA Topical Group on Diagnostics, Culham, U.K., March 14-18, 2005.

D. A. Jackson and A. F. Fernandez, "Scintillation Fibre Optic Radiation Monitoring System Calibration and Potential Applications", In Proc. Sensor Materials for the Detection and Identification of Radiological Substances, IoP, London, March 9, 2005.

J. Braet, A. Bruggeman, S. Vanderbiesen, "An overview of SCK•CEN's technological research for the treatment of tritiated waste", 10<sup>th</sup> International Conference on Progress in Cryogenics and Isotopes Separation, Calimanesti (Romania), October 12-15, 2004.

B. Brichard, "Radiation effects on large diameter optical fibres", ITPA Diagnostics Group Technical Meeting, October 11-14, 2004, Hefei, China.

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C. Domain, C.S. Becquart and L. Malerba, "Kinetic Monte Carlo simulation of microstructural evolution in  $\alpha$ -Fe under irradiation", Proc. 2<sup>nd</sup> International Conference Multiscale Materials Modelling, N.M. Ghoniem Ed., ISBN 0-9762064-1-2 (2004), p. 486.

## Reports

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R. Chaouadi, "Assessment of the Effects of Neutron Irradiation on the Mechanical Properties of Eurofer-97 Ferritic/Martensitic Steel", SCK•CEN Report R-4257, November 2005.

M. Decréton, H. Ooms, C. Hendrickx, B. Brichard, "In-reactor radiation-induced electrical degradation (RIED) determination for sapphire in a dynamic vacuum", Final Report of task TW1-TPD-IRR CER-D10b, SCK•CEN Report R-4216, September 2005.

L. Vermeeren, "Thermal effects on RIEMF for selected MI cable coils: Study of thermal induced differential voltages along copper and stainless steel core MI cables", Part I of Final Report for EFDA Task TW4-TPDC-IRR CER Del.6, SCK•CEN Report R-4254, October 2005.

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P. Jacquet, CORSAIR + He II– Descriptive report, NT.57/F044052/01/PJ, June 2005.

K. Dylst, J. Braet, A. Bruggeman, J. Seghers, "Studies on possible concrete detritiation: Study on the possible detritiation of tritium contaminated concrete with superheated steam", Final Report of Task TW4-TSW-002, R-4141, May 2005.

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## Theses

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S. Geboers, "Characterization and simulation of a bipolar SiGe transistor under gamma radiation" (in Dutch), BSc thesis, Katholieke Hogeschool Kempen, Geel, Belgium, June 2005.

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## Short Courses

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