

Curriculum Vitae (July 17, 2000)

Last name De Graef
First name Marc

Place and date of birth Antwerp (Belgium), April 7th 1961

Contact address Department of Materials Science and Engineering
Wean Hall, Room 4307
Carnegie Mellon University
Pittsburgh, PA 15213-3890
Ph: (412) 268-8527
Fax: (412) 268-7596
email: degraef@cmu.edu
URL: <http://neon.mems.cmu.edu/degraef.html>

Private address 737 Washington Drive
Pittsburgh, PA 15229
Ph: (412) 364-5287

University studies Physics (1979-1983)
“Experimental Solid State Physics : Electron Microscopy”
at the University of Antwerp (RUCA-UIA)

“Licentiaatsthesis” (\approx Masters Thesis) :
High Resolution Electron Microscopy :
- *Theoretical Aspects*
- *Study of $xMnS - yGa_2S_3$*
Thesis advisor : Prof. Dr. J. Van Landuyt

Ph. D. Thesis (defended 5/22/89)
*Contribution to the study of phase stability before and after
martensitic transformation in β -Cu-Zn-Al alloys.*
Minor thesis : *Changes in the normal electro-encephalographic
patterns during the different stages of a parabolic flight, can be
identified by means of Fourier Transform techniques.*
Thesis advisors : Prof. Dr. L. Delaey, Prof. Dr. G. King

Scientific activities

- 9/1/83–2/28/84 : Research Assistant at the Laboratory for Solid State Chemistry and Heterogeneous Catalysis of the Rijksuniversiteit at Leiden (The Netherlands); electron microscopic research on sulfides and oxides.
- 3/1/84–8/31/89 : full time scientist at the Department of Metallurgy and Materials Engineering of the Catholic University of Leuven (Belgium); graduate studies.
- 9/1/89–2/28/93 : post-doctoral research stay as Assistant Research Engineer (EMP-14) at the Materials Department of the University of California at Santa Barbara; Temporary Lecturer for the graduate course on Crystallography and Diffraction.
- 10/1/90–10/1/92 : “Bevoegdverklaard Navorsers” (Research Associate), a tenured position at the Belgian National Fund for Research (NFWO) and Associate Professor at the Catholic University of Leuven (Belgium).
- 3/1/93–present : Assistant Professor in the Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh (Tenure track position)

Awards

- “Grant” of the Belgian Society for Electron Microscopy for attending the ICOMAT-86 (Nara) and ICEM-86 (Kyoto) conferences in Japan.
- “Kazato Research Award” for contributions at the XIth ICEM at Kyoto (Japan, 1986).
- Invitation from the Japanese Government for a research stay of 3 months at the National Research Institute for Metals (Tokyo), with Dr. S. Kajiwara.
- Second prize in the Poster Competition at the 53rd Meeting of the Microscopy Society of America (Kansas City, 1995).
- George Tallman Ladd Award, College of Engineering, Carnegie Mellon University (1996)
- R.E. Peterson Award of the Society for Experimental Mechanics for the paper “A simple Method for Measuring Surface Strains around Cracks,” Experimental Mechanics Vol. 36, 1996. (1998)

Invited Lectures

- 2/13/87 : National Research Institute for Metals (Tokyo, Japan), *Lattice stability of Cu-based shape memory alloys.*
- 3/9/87 : Nara's Women University (Nara, Japan), *Lattice stability of Cu-based shape memory alloys.*
- 3/10/87 : Kansai University (Osaka, Japan), *Thermodynamic phase stability of stabilised Cu-Al martensite.*
- 3/26/87 : University of Tsukuba (Tsukuba, Japan), *Long period superlattice phases in Cu-Al alloys.*
- 8/25/87 : Max Planck Institut für Metallforschung, Institut für Physik (Stuttgart, West Germany), *Long period superlattice phases in Cu-Al alloys and their relations to the martensitic phase transformation.*
- 6/13/89 : University of Antwerp (Belgium), *Phase stability before and after martensitic transformation in β -Cu-Zn-Al alloys.*
- 12/2/91 : Materials Research Society Conference (Boston), *Electron microscopic study of domain boundaries in relaxor ferroelectrics.*
- 11/2/92 : American Ceramic Society Meeting (San Francisco), *The effect of cracks on the superconducting transport current.*
- 4/19/94 : Emerging Issues in Mathematics and Computation from the Materials Sciences, (SIAM, Pittsburgh), *Phases and Phase Stability in the Cu-Al-Zn System.*
- 6/5/96 : Frontiers of Electron Microscopy Meeting (Oakbrook, Illinois), *Energy Filtered Lorentz Microscopy.*
- 7/25/96 : International Metallographic Society Meeting (Pittsburgh, Pennsylvania) *Applications of Image Analysis and Modelling to Materials.*
- 9/13/97 : Center for Non-Linear Analysis (CMU), *Magnetic Domains and Magnetization vectors : How can we observe and quantify them?*
- 5/15/98 : Iowa State University, *Magnetic Induction and Quantitative Lorentz Microscopy in the TEM*
- 12/1/98 : MRS Meeting, *Interactive Crystallography in Materials Education*

Attended Conferences

- 8/8–8/12 1983 : Eighth European Crystallographic Meeting (Luik, Belgium)
- 9/11–9/16 1983 : Joint Meeting on Electron Microscopy (Antwerp, Belgium)
- 5/20–5/25 1984 : Workshop on Monte Carlo Simulation Techniques in Metallurgy (Ispra, Italy)
- 6/19–6/21 1984 : Discussion Meeting on Martensite (Leuven, Belgium)
- 12/11–12/12 1984 : “Dislocations and properties of real materials” (50 years of dislocation theory), The Royal Society (London)
- 2/24–2/28 1985 : 114th TMS-AIME annual meeting (New York)
- 8/26–8/30 1986 : International Conference on Martensitic Transformations (Nara, Japan)
- 8/31–9/7 1986 : XIth International Conference on Electron Microscopy (Kyoto, Japan)
- 6/14–6/27 1987 : NATO Advanced Study Institute on Alloy Phase Stability (Kreta, Greece)
- 11/28–12/3 1988 : MRS Fall Meeting (Boston)
- 3/19–3/22 1989 : Swiss Materials Workshop : “Current Topics on Intermetallics for Structural Applications” (Neuchâtel, Switzerland)
- 7/2–7/6 1989 : International Conference on Martensitic Transformations (Sydney, Australia)
- 11/5–11/8 1991 : Conference on Active Materials and Adaptive Structures (Alexandria, VA)
- 12/2–12/6 1991 : MRS Fall Meeting (Invited paper, Boston)
- 4/21–4/24 1992 : Frontiers of Electron Microscopy (Oakland, CA)
- 11/2–11/4 1992 : 45th Pacific Coast Regional Meeting of ACS (invited paper, San Francisco)
- 8/1–8/5 1993 : 51st Annual Meeting of the Microscopy Society of America (Cincinnati)

- 10/18–10/21 1993 : TMS Meeting (Pittsburgh, PA)
- 4/18–4/20 1994 : Conference on Emerging Issues in Mathematics and Computation from the Materials Sciences (invited paper, Pittsburgh, PA)
- 5/25–5/26 1994 : NASA Microgravity Materials Science Conference (Huntsville, Alabama)
- 7/17–7/22 1994 : International Conference on Electron Microscopy (Paris, France)
- 9/12–9/15 1994 : Fifth International Conference on the Effects of Hydrogen on Material Behavior (Jackson Hole, WY)
- 11/27–12/2 1994 : Materials Research Society Fall Meeting (Boston, MA)
- 2/2–2/6 1995 : TMS Meeting (Las Vegas, NV)
- 8/2–8/6 1995 : 53st Annual Meeting of the Microscopy Society of America (Cincinnati)
- 11/26–11/30 1995 : Materials Research Society Fall Meeting (Boston, MA)
- 2/2–2/6 1996 : TMS Meeting (Anaheim, CA)
- 4/8–4/12 1996 : INTERMAG conference (Seattle, WA)
- 6/4–6/7 1996 : Frontiers of Electron Microscopy Meeting (invited paper, Oakbrook, IL)
- 7/21–7/24 1996 : International Metallographic Society Meeting (invited paper, Pittsburgh, PA)
- 8/26–8/30 1996 : EUREM Conference (Dublin, Ireland)
- 10/7–10/10 1996 : TMS Materials Week (Cincinnati, OH)
- 6/13–6/18 1997 : Gordon Research Conference (Henniker, NH)
- 8/10–8/14 1997 : Microscopy Society of America Conference (Cleveland, OH)
- 9/14–9/17 1997 : TMS Materials Week (Indianapolis, IN)
- 9/21–9/25 1997 : Second International Symposium on Structural Intermetallics (Seven Springs, PA)
- 1/6–1/9 1998 : MMM/Intermag Meeting (San Francisco, CA)
- 2/15–2/19 1998 : TMS Annual Meeting (San Antonio, TX)

- 4/20–4/25 1998 : Frontiers of Electron Microscopy Meeting (Irsee, Germany)
- 5/14–5/15 1998 : Symposium on Microstructure and Microscopy of Magnetic Materials (Ames, IA)
- 7/26–7/29 1998 : Gordon Research Conference on Materials Education (Plymouth, NH)
- 11/7–11/10 1998 : 43RD MMM Meeting (Miami, FL)
- 12/1–12/2 1998 : MRS Research Meeting (Boston, MA)

Publications

1. M. De Graef, *Hoge resolutie elektronenmicroscopie : – theoretische aspecten, – studie van het systeem $xMnS - yGa_2S_3$* , Masters Thesis, University of Antwerp (1983, in Dutch)
2. M. De Graef, D. Van Dyck & J. Van Landuyt, *On the symmetry properties of axial high resolution electron micrographs*, Proc. 8th European Crystallographic Meeting (Luik, Belgium), 302 (1983)
3. M. De Graef, M. Bakker, J. Van Landuyt & S. Amelinckx, *High resolution study of the manganese gallium sulfide $MnGa_2S_4$* , Proc. Joint Meeting on Electron Microscopy (Antwerp, Belgium), 132 (1983)
4. M. De Graef, M. Bakker, M. Van Hemert, J. Van Landuyt & S. Amelinckx, *Structure models for $\beta - MnGa_2S_4$ as derived from electron diffraction and high resolution electron microscopy*, J. Sol. Stat. Chem. **55**, 133 (1984)
5. M. De Graef, J. Van Humbeeck & L. Delaey, *Changes at the martensite plate boundaries and stabilisation (TEM observations)*, “Discussion Meeting on Cu-Zn-Al martensite”, report R84, KULeuven p. 59, (1984)
6. M. De Graef, P. Seynen & D.J.W. IJdo, *Electron microscopic study of the system NiO-TiO₂, Part I : $Ni_{2(1+x)}Ti_{1-x}O_4$ compounds*, J. Sol. Stat. Chem. **58**, 643 (1985)
7. M. De Graef, M. Andrade, J. Van Humbeeck & L. Delaey, *The stabilisation of step-quenched Cu-Zn-Al martensite*, Scripta Met. **19**, 643 (1985)
8. M. De Graef, J. Van Humbeeck & L. Delaey, *TEM-observations of stabilised Cu-Zn-Al martensite*, Proc. Int. Conf. on Martensitic Transformations, Nara (Japan), 850 (1986)
9. M. De Graef, D. Broddin, J. Van Humbeeck & L. Delaey, *Study of long period APB-structures in Cu-Zn-Al alloys*, J. of Electron Microscopy **35**, 845 (1986)
10. M. De Graef, *HREM study of $Ni_{2(1+x)}Ti_{1-x}O_4$ spinels*, J. of Electron Microscopy **35**, 817 (1986)
11. M. De Graef & J. Ortín, *Hysteresis : a software package*, Scripta Met. **21** p. I (software section) (1987)

12. D. Broddin, M. De Graef, G. Van Tendeloo, J. Van Landuyt, L. Delaey & S. Amelinckx, *Long period superstructures in Cu-Al*, *Micr. Microsc. Acta* **18**, 239 (1987)
13. M. De Graef & D. Broddin, *Long period superlattice phases in Cu-Al-Zn alloys* in "Alloy Phase Stability", eds. G.M. Stocks & A. Gonis, NATO ASI series, Vol. 163, 119 (1987)
14. M. De Graef, D. Broddin, J. Van Humbeeck & L. Delaey, *Phase transformations during stabilisation of Cu-Zn-Al martensite*, *Proc. Int. Conf. Solid-solid Phase Transformations '87*, G.W. Lorimer ed., Cambridge (UK), 86 (1988)
15. M. De Graef & L. Delaey, *A new empirical two-body interaction potential fitted to second and third order elastic moduli*, *phys. stat. sol. (b)* **146**, 427 (1988)
16. M. De Graef, B. Verlinden & L. Delaey, *A new potential model for the description of lattice stability in β -phase alloys*, *Scripta Met.* **22**, 1531 (1988)
17. D. Broddin, M. De Graef & J. Van Landuyt, *Structure combination branching in the long period anti-phase boundary modulated $Cu_{3+x}Al$ alloys*, *Proc. EUREM, York, Inst. Phys. Conf. Ser.* **93**, chpt. 13, 487 (1988)
18. M. De Graef, L. Delaey & D. Broddin, *High resolution electron microscopic study of the X-phase in Cu-Al and Cu-Al-Zn alloys*, *phys. stat. sol. (a)* **107**, 597 (1988)
19. G. Ceder, M. De Graef, L. Delaey, J. Kulik & D. de Fontaine, *A Gorsky-Bragg-Williams approach to the study of long period superlattice phases in binary alloys*, *Phys. Rev. B* **39**, 381 (1989)
20. D. Broddin, G. Van Tendeloo, J. Van Landuyt, S. Amelinckx & M. De Graef, *The long period antiphase boundary modulated structures in $Cu_{3+x}Al_{1-x}$ alloys*, *Phil. Mag. A* **59**, 979 (1989)
21. M. De Graef, *Bijdrage tot de studie van fazestabiliteit voor en na de martensitische transformatie in β -Cu-Zn-Al legeringen*, Ph. D. Thesis, Catholic University of Leuven (Belgium) (1989, in Dutch)
22. M. De Graef, B. Verlinden & L. Delaey, *Numerical simulations of the lattice stability of β -phase Hume-Rothery alloys*, *Mat. Res. Soc. Symp. Proc.* **141**, 189 (1989)
23. M. De Graef & L. Delaey, *Numerical simulation of mechanical stability in β -Cu-Zn-Al*, *Mat. Sci. Forum*, **56-58**, 423-428 (1990)
24. J. Fransaer, M. De Graef & J. Roos, *The temperature distribution around a spherical particle on a planar surface*, *J. Heat Transfer*, **112**, 561 (1990)

25. L. Delaey, T. Sugimoto, M. De Graef & J. Van Humbeeck, *Changes in stacking sequence of β_1' martensite plates interacting with particles*, Scripta Metall. Mater., **24**, 1163 (1990)
26. M. De Graef, J.P.A. Löfvander, & C.G. Levi, *The structure of complex monoborides in γ -TiAl alloys with Ta and B additions*, Acta Metall. Mater., **39**, 2381 (1991)
27. J. Besson, M. De Graef, J.P.A. Löfvander & S.M. Spearing, *Fracture behavior and microstructure of MoSi_2 reinforced with ductile ellipsoidal Nb particles*, Journal of Materials Science, **27**, 4160–4166 (1992)
28. M. De Graef, J. Speck, D.R. Clarke & D. Dimos, *Electron microscopic study of domain boundaries in relaxor ferroelectrics*. Mat. Res. Soc. Sym. Proc., **243**, *Ferroelectric thin films II*, 3–14 (1992)
29. M. De Graef, J.P.A. Löfvander, C. McCullough and C.G. Levi, *The evolution of metastable B_f borides in a Ti–Al–B alloy*, Acta Metall. Mater., **40**, 3395–3406 (1992)
30. M. De Graef, J.S. Speck & D.R. Clarke, *TEM study of domain wall structures in anti-ferroelectric materials*, in “Active Materials and Adaptive Structures”, ed. G.J. Knowles, IOP Publishing Ltd (Philadelphia 1992), p. 87–90
31. M. De Graef, B.J. Dalgleish, M.R. Turner, & A.G. Evans, *Interfaces between alumina and platinum : structure, bonding and fracture resistance*, Acta Metall. Mater., **40**, S333–S344 (1992)
32. M. Bannister, S.M. Spearing, J.P.A. Löfvander, M. De Graef, *Fatigue of extruded steel/NiAl composites* Mat. Res. Soc. Symp. Proc., **273**, 177–182 (1992)
33. K.G.F. Janssens, J. Vanhellemont, M. De Graef and O. Van der Biest, *SIMCON : a versatile software package for the simulation of electron diffraction contrast images of arbitrary displacement fields*, Ultramicroscopy **45**, 323–335 (1992)
34. M. De Graef and D.R. Clarke, *Strain contrast at crack tips for in-situ transmission electron microscopy straining experiments*, Ultramicroscopy, **49**, 354–365 (1993)
35. E.J. Tarsa, M. De Graef, D.R. Clarke, E.L. Hu, A.C. Gossard and J.S. Speck, *Growth and characterization of (111) and (001) oriented MgO films on (001) GaAs*, J. Appl. Phys., **73**, 3276–3283 (1993)
36. J.S. Speck, M. De Graef, A.P. Wilkinson, A.K. Cheetham and D.R. Clarke, *Hierarchical domain structures and in-situ domain generation in the antiferroelectric ceramic PLSnZT* , J. Appl. Phys. **73**, 7261–7267 (1993)

37. D.R. Clarke and M. De Graef, *The effect of cracks on the superconducting transport current in thin film : the analogy with two-dimensional elasticity and plasticity*, J. Mat. Res., **8**, 1515-1532 (1993)
38. M. De Graef and D.R. Clarke, *Measurement of residual stress in MgO films on GaAs by electron microscopy*, Appl. Phys. Lett., **63**, 1044-1046 (1993)
39. H.C. Cao, M. De Graef and A.G. Evans, *Structure and properties at the ferroelectric/electrode interface between Lead Zirconate Titanate and Copper*, J. Am. Ceram. Soc., **76**, 3019-3023 (1993)
40. M. De Graef, D.R. Clarke and J.S. Speck, *In-situ domain multiplication and migration in the antiferroelectric ceramic PLSnZT*, Ultramicroscopy, **52**, 179-186 (1993)
41. K.J. Vaidya, C.Y. Yang, M. De Graef and F.F. Lange, *Heteroepitaxy of rare-earth hexa-aluminates on Sapphire*, J. Mater. Res., **9**, 410-419 (1994)
42. V. Jayaram, M. De Graef and C.G. Levi, *Metastable extension of the fluorite phase field in Y_2O_3 - ZrO_2 and its effect on grain growth*, Acta Metall. Mater., **42**, 1829-1846 (1994)
43. M.E. McHenry, S.A. Majetich, J.O. Artman, M. De Graef and S.W. Staley, *Superparamagnetism in carbon coated Co particles produced by the Kratschmer-arc process*, Phys. Rev. B, **49**, 11358 (1994)
44. M.E. McHenry, S.A. Majetich, J.O. Artman, M. De Graef, S.W. Staley, E.M. Brunsmann, E. Bortz, S. Kirkpatrick, K. Midelfort, J. Williams, and B. Brunett, *Magnetic properties of carbon coated, ferromagnetic cobalt nanoparticles produced by a carbon-arc method*, J. Appl. Phys., **75**, 5882 (1994)
45. M. De Graef, D.B. Allen, X. Pierron, T.M. Pollock and A.W. Thompson, *High resolution electron microscopy study of planar anti-phase boundaries in orthorhombic Ti_2NbAl* , Proceedings 13th International Conference on Electron Microscopy, Paris, pp. 665-666 (1994)
46. N.T. Nuhfer, M. De Graef, M.E. McHenry, S.A. Majetich, J.O. Artman, and S.W. Staley, *Electron microscopy study of carbon coated magnetic nanoparticles produced by the Kratschmer-arc process*, Proceedings 13th International Conference on Electron Microscopy, Paris, pp. 313-314 (1994)
47. K. Li, T.M. Pollock, A.W. Thompson and M. De Graef, *A new phase in hydrogen charged $Ti_{-48}Al_{-2}Cr_{-2}Nb$* , Scripta Metall. Mater., **32**, 1009-1014 (1995)

48. S. Kirkpartrick, M.E. McHenry, M. De Graef, P.A. Smith, Y. Nakamura, D.E. Laughlin, E.M. Brunsman, J.H. Scott and S.A. Majetich, *Magnetic properties of Sm-Co-C and Mn-Al-C alloy nanoparticles*, Scripta Metall. Mater., **33**, 1703-1708 (1995)
49. J. Dooley and M. De Graef, *TEM study of twinning and magnetic domains in Terfenol-D*, Mat. Res. Soc. Sym. Proc., **360**, 189-195 (1995)
50. J.W. Yang, J.N. Kunzia, Q.C. Chen, M. Asif Kahn, T. George, M. De Graef, and S. Mahajan, *Temperature-mediated phase selection during growth of GaN on (111)_A and (111)_B GaAs substrates*, Appl. Phys. Lett., **67**, 3759-3761 (1995)
51. W. Qian, M. Skowronski, M. De Graef, G. Rohrer, K. Doverspike, L.B. Rowland, and D.K. Gaskill, *TEM and AFM studies of structural defects in alpha-GaN films*, Proceedings of the Annual Meeting of the Microscopy Society of America, Kansas City, Eds. G.W. Bailey, M.H. Ellisman, R.A. Hennigar, N.J. Zaluzec, pp. 456-457, Jones and Begell Publishing (New York, 1995)
52. J. Dooley, N.T. Nuhfer, and M. De Graef, *Lorentz observation of magnetic domains in Terfenol-D*, Proceedings of the Annual Meeting of the Microscopy Society of America, Kansas City, Eds. G.W. Bailey, M.H. Ellisman, R.A. Hennigar, N.J. Zaluzec, pp. 482-483, Jones and Begell Publishing (New York, 1995)
53. N.T. Nuhfer, J. Dooley, and M. De Graef, *Energy filtered magnetic domain imaging at 400 kV*, Proceedings of the Annual Meeting of the Microscopy Society of America, Kansas City, Eds. G.W. Bailey, M.H. Ellisman, R.A. Hennigar, N.J. Zaluzec, pp. 306-307, Jones and Begell Publishing (New York, 1995)
54. X. Pierron, M. De Graef, T.M. Pollock, and A.W. Thompson, *Hydrogen-induced phase transformations in $\alpha_2 + B2$ Ti-25Al-10Nb-3V-1Mo titanium aluminide*, Proceedings of the Annual Meeting of the Microscopy Society of America, Kansas City, Eds. G.W. Bailey, M.H. Ellisman, R.A. Hennigar, N.J. Zaluzec, pp. 520-521, Jones and Begell Publishing (New York, 1995)
55. W. Qian, M. Slowronski, M. De Graef, K. Doverspike, L.B. Rowland, and D.K. Gaskill, *Microstructural characterization of α -GaN films grown on sapphire by organometallic vapor phase epitaxy*, Appl. Phys. Lett., **66**, 1252-1524 (1995)
56. Y. Nakamura, P.A. Smith, D.E. Laughlin, M. De Graef, and M.E. McHenry, *Structure and magnetic properties of quenched $(Mn_xAl_{1-x})_3O_4$ spinels and hausmannites*, IEEE Trans. Mag., **31**, 4154-4156 (1995)
57. D.J. Wissuchek, T.J. Mackin, M. De Graef, G.E. Lucas and A.G. Evans, *A simple method for measuring surface strains around cracks*, Experimental Mechanics, **36**, pp. 173-179 (1996)

58. K. Li, M. De Graef, T.M. Pollock, D.B. Allen, and A.W. Thompson, *Hydrides in High Pressure Hydrogen-Charged TiAl Alloys*, Proceedings of the Fifth International Conference on the Effects of Hydrogen on Material Behavior, Eds. A.W. Thompson and N.R. Moody, Jackson Hole, pp. 809-818 (TMS, 1996)
59. D.B. Allen, A.W. Thompson and M. De Graef, *The effects of hydrogen on the stability of the orthorhombic phase in Ti-24Al-11Nb*, Proceedings of the Fifth International Conference on the Effects of Hydrogen on Material Behavior, Eds. A.W. Thompson and N.R. Moody, Jackson Hole, pp. 831-840 (TMS, 1996)
60. J. Cheney and M. De Graef, *An X-Ray Diffraction Simulator for Undergraduate Crystallography*, Journal of Materials Education, **18**, pp. 57-66 (1996)
61. W. Qian, M. Skowronski, R. Kaspi and M. De Graef, *Nucleation of misfit and threading dislocations in GaSb/GaAs(001) heterostructure*, Proceeding of the 54th MSA annual meeting, edited by G.W. Bailey, J.M. Corbett, R.V.W. Dimlich, J.R. Michael and N.J. Zaluzec, p. 946-947 (1996).
62. M. Chandrasekaran, G. Gosh, D. Schryvers, M. De Graef, L. Delaey and G. Van Tendeloo, *Decomposition of a metastable bcc phase in rapidly solidified Ni - 9at.% Zr and Ni - 8at.% Zr - 1at% X alloys*, Philosophical Magazine A, **75**, pp. 677-701 (1997)
63. K. Muraleedharan, L.L. Rishel, M. De Graef, A.W. Cramb, T.M. Pollock and G.T. Gray III, *The effect of cooling rate on microstructural development in cast Ti-48Al-2Cr-2Nb type alloys*, Structural Intermetallics 1997, Eds. Nathal M.V., Darolia R., Liu, C.T., Martin P.L., Miracle D.B., Wagner R., and Yamaguchi M., TMS, pp. 215-224 (Seven Springs, 1997)
64. D.J. Tilly, J.P.A. Lofvander, M. De Graef, and C.G. Levi, *Interfaces in MoSi₂-SiC in-situ composites synthesized by melt processing*, Metallurgical and Materials Transactions, **28A**, pp. 1901-1911 (1997)
65. M. De Graef, D.H. Hardwick and P.L. Martin, *Structural evolution of titanium diborides in wrought Ti-47Al-2Mo-0.2B*, Structural Intermetallics 1997, Eds. Nathal M.V., Darolia R., Liu, C.T., Martin P.L., Miracle D.B., Wagner R., and Yamaguchi M., TMS, pp. 185-194 (Seven Springs, 1997)
66. W. Qian, M. Skowronski, R. Kaspi, M. De Graef and V.P. Dravid, *Nucleation of misfit and threading dislocations during epitaxial growth of GaSb on GaAs(001) substrates*, Journal of Applied Physics, **81**, pp. 7268-7274 (1997)
67. E.K. Sanchez, M. De Graef, W. Qian, and M. Skowronski, *HRTEM characterization of 6H-15R polytype boundaries in silicon carbide grown by physical vapor transport*, Mat. Res. Soc. Symp. Proc., **442**, pp. 655-661 (1997)

68. J. Dooley and M. De Graef, *Energy Filtered Lorentz Microscopy*, *Ultramicroscopy*, **67**, pp. 113-132 (1997)
69. J. Dooley and M. De Graef, *Simulation of magnetic induction mapping in the TEM*, Proc. Microscopy and Microanalysis Conference, Eds. G.W. Bailey, R.V.W. Dimlich, K.B. Alexander, J.J. McCarthy, and T.P. Pretlow, pp. 1157-1158 (Springer, 1997)
70. J. Dooley and M. De Graef, *Energy filtered magnetic induction mapping*, *Micron*, **28**, pp. 371-380 (1997)
71. J. Dooley, M. De Graef and M.E. McHenry, *Induction Mapping of Magnetostrictive Materials*, *J. Appl. Phys.* **83**, pp. 6837-6839 (1998)
72. X. Pierron, M. De Graef and A.W. Thompson, *Effect of hydrogen on the microstructure of Ti₃Al+Nb titanium aluminide*, *Phil. Mag A*, **77**, pp. 1399-1421 (1998)
73. M. De Graef, *Magnetic Induction and Quantitative Lorentz Microscopy in the TEM*, "Symposium on Microstructure and Microscopy of Magnetic Materials," Ames Iowa, May 14-15 (1998)
74. M. De Graef, N.T. Nuhfer, and M.R. McCartney, *Phase Contrast of Spherical Magnetic Particles*, *J. of Microscopy*, **194**, pp. 84-94 (1999)
75. K. Li, T.M. Pollock, M. De Graef, U. Habel, and A.W. Thompson, *Surface Hydrides in Low and High Pressure Hydrogen-charged Ti-48Al-2Cr-2Nb*, submitted to *Mater. Sci. Eng.* (1999)
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