

Curriculum Vitae Professor Dr. Eric Jan Mittemeijer

Born 1950; nationality: Dutch/German

Education:

- 1962 - 1967: secondary school.
- 1967 - 1972: study of chemical technology (specialized in physical chemistry) at Delft University of Technology (Ir. degree; cum laude).
- 1972 - 1978: employed by Foundation for Fundamental Research of Matter; Ph.D. study.
- 1978 - 1985: deputy leader of the group Heat Treatment Science of Ferrous and Non-Ferrous Alloys at the Delft University of Technology.
- 1985 - 1998: Full Professor (chair holder) of Physical Chemistry of the Solid State at the Delft University of Technology from 1985 at the age of 35 years.
- 1996 - 1997: Vice-Dean Faculty of Chemical Technology and Materials Science, Delft University of Technology.
- 1998 - present: Director at the Max Planck Institute for Intelligent Systems (formerly: Max Planck Institute for Metals Research) in Stuttgart and Full Professor (chair holder) at the Institute for Materials Science at the University of Stuttgart.

Professor Mittemeijer has founded and led the department "Phase Transformations" at the Max Planck Institute for Intelligent Systems. since 1998. The department controls extensive equipment for a.o. X-ray diffraction analysis, scanning Auger microscopy and X-ray photo-electron spectroscopy and ellipsometry, calorimetry and dilatometry.

Mittemeijer studied physical chemistry and wrote a Ph.D. thesis entitled "Diffraction Studies of Concentration Variations" (1978). Thereafter his research has been focussed on the relation between properties and structure of new materials (e.g. nanomaterials) and, in particular, (thin and ultrathin) surface layers, and phase transformations of metastable materials.

Current areas of special interest:

- phase transformations, (interface) thermodynamics and kinetics;
- nanomaterials, their unusual properties;
- stress and phase transformations in (very) thin (multi)layers;
- nitriding and nitrocarburizing of iron, iron alloys and steels;
- oxidation of metals and alloys.

He has published more than **700 papers** in international scientific journals.

He published (editor) a book on **Diffraction Analysis of the Microstructure of Materials** (Publisher: Springer; 2004).

He wrote a textbook on **Fundamentals of Materials Science** (Publisher: Springer; 2010).

He published (editor) a book on **Modern Diffraction Methods** (Published: Wiley-VCH, 2013).

He published (editor) a book on **Thermochemical Surface Engineering of Steels; Improving Materials Performance** (Publisher: Woodhead, 2014).

He published (editor) a book on **Metal-Induced Crystallization; Fundamentals and Applications** (Publisher: Pan Stanford, 2014).

He is in the **editorial board** of a.o. the journals "International Materials Reviews", "Journal of Alloys and Compounds", "Zeitschrift für Kristallographie", "Journal of ASTM International", "The Open Materials Science Journal" and "the Journal of Metallurgy". He is **Editor-in-Chief** of the journal "International Journal of Materials Research". He is **editor/publisher** of the journal "HTM Journal of Heat Treatment and Materials". He acts as referee of numerous journals.

He is/was **member of programme/scientific committees of numerous international conferences.**

He is/was **the chairman or a co-chairman of many international conferences:**

He was **editor of many Conference Proceedings**, also including most European Powder Diffraction Conferences and ASM Heat Treatment and Surface Engineering Conferences.

He was **co-editor of the European White Book on Fundamental Research in Materials Science** (2001) that played a major role in the formulation of the sixth Framework Programme of the European Union.

He is **member of a number of national and international societies** in his fields of interest. In particular should be mentioned:

He is co-founder and was President of the Dutch/Belgian Heat Treatment Society and he is co-founder and was President of the (Dutch) Society of Metals. He was a member of the Board of the Heat Treating Society of the American Society of Materials. He is elected Member of the International Center for Diffraction Data (ICDD). He was the chairman of the AWT-working group on Nitriding and Nitrocarburizing. From 1998 until 2004 Mittemeijer served as the Chairman of the European Powder Diffraction Committee (EPDIC).

He was a **member of the Supervisory Board** and is an **advisor** of SKF Engineering & Research Centre B.V. and SKF Engineering & Research Services B.V.

He has founded and has been for more than 12 years **Speaker** of the International Max Planck Research School on Advanced Materials (**IMPRS-AM**).

He has been the supervisor of **more than 75 Ph.D. theses** (i.e. the **promotor**).

He has been for more than 10 years **Dean of the Study Course Materials Science** (responsible for the teaching and the new Bachelor/Master programme on Materials Science) and chairman of the Board of Examinations for the **Study Course Materials Science** ("Materialwissenschaft") at the University of Stuttgart.

Awards/Honours:

- Unilever Chemistry Prize (1972);
- Agricola Medal from the Netherlands Society of Materials (1984);
- 70th Anniversary Commemorative Medal of the Technical University of Poznan (1990);
- 1991-1992 ASM European Lectureship;
- Fellow of the American Society of Materials (1992);
- Jacob Wallenberg Award granted by the Royal Academy of Engineering Sciences of Sweden (1993);
- Honorary President of the Dutch-Belgian Society of Heat Treatment. VWT (1996);
- Honorary Member of the Netherlands Society of Metals (1998).
- Honorary Professor, Tianjin University (2006).
- IFHTSE Medal (IFHTSE = International Federation for Heat Treatment and Surface Engineering), 2010.
- Samsonov Memorial International Lecture 2012 (Indian Institute of Technology, Kanpur, India).
- Werner Köster Preis 2012 (German Society for Materials Science and Engineering (Deutsche Gesellschaft für Materialkunde; DGM)).
- Adolf Martens Medal (German Society for Heat Treatment Science and Materials Engineering (AWT)), 2015.
- Honorary Member of the German Society for Materials Science and Engineering (Deutsche Gesellschaft für Metallkunde; DGM), 2016.

Major publications:

E.J. Mittemeijer: Fundamentals of Materials Science, Springer-Verlag, Berlin Heidelberg, 2010.

E.J. Mittemeijer and M.A.J. Somers (Eds.): Thermochemical Surface Engineering of Steels, Elsevier-Woodhead Publishing, Amsterdam, 2015.

E.J. Mittemeijer: Fundamentals of Nitriding and Nitrocarburizing. In (Eds.: J. Dossett and G.E. Totten) ASM Handbook **Volume 4A**, 619-646 (2013).

D. Flötotto, Z. Wang, L.P.H. Jeurgens and E.J. Mittemeijer:
Quantum Confinement Drives Macroscopic Stress Oscillations at the Initial Stage of Thin Film Growth
Physical Review Letters **109**, 045501 (2012)

Z.M. Wang, Z.M., L.Gu, F. Phillip, J.Y. Wang, L.P.H. Jeurgens and E.J. Mittemeijer:
Metal-Catalyzed Growth of Semiconductor Nanostructures Without Solubility and Diffusivity Constraints
Advanced Materials **23**, 854-859 (2011)

Jaegle E.A. and E.J. Mittemeijer:
The Kinetics of Grain-Boundary Nucleated Phase Transformations: Simulations and Modelling
Acta Materialia **59**, 5775-5786 (2011)

Z.M. Wang, J.Y. Wang, D.He, L.P.H. Jeurgens and E.J. Mittemeijer:
Tailoring the Ultrathin Al-Induced Crystallization Temperature of Amorphous Silicon
by Application of Interface Thermodynamics
Physical Review Letters **100**, 125503 (2008)

F. Reichel, L.P.H. Jeurgens and E.J. Mittemeijer:
The Thermodynamic Stability of Amorphous Oxide Overgrowths on Metals.
Acta Materialia **56**, 659-674 (2008)

Y. Kuru, M. Wohlschlägel, U. Welzel and E.J. Mittemeijer:
Crystallite Size Dependence of the Coefficient of Thermal Expansion of Metals.
Applied Physics Letters **90**, 243113 (2007)

F. Liu, C. Bos, F. Sommer and E.J. Mittemeijer:
Analysis of Solid State Phase Transformation Kinetics: Models and Recipes
International Materials Reviews **52**, 193-214 (2007)

C. Bos, F. Sommer and E.J. Mittemeijer:
An Atomistic Analysis of the Interface Mobility in a Massive Transformation,
Acta Materialia. **53**, 5333-5341 (2005)

U. Welzel and E.J. Mittemeijer:
Diffraction stress analysis of macroscopically elastically anisotropic specimens,
Journal of Applied Physics **93**, 9001-9011 (2003)

E.J. Mittemeijer:
Analysis of the kinetics of phase transformations,
Journal of Materials Science **27**, 3977-3987 (1992)