CURRICULUM VITAE

Simo-Pekka Villehard Hannula, Professor, Materials Science, born in 1952

ACADEMIC EDUCATION

Doctor of Sci. (Tech.), 1988, Helsinki University of Technology, Physical Metallurgy, Title of the thesis: "State Variable Approach to Deformation Phenomena in FCC Metals"
Licentiate of Sci. (Tech.), 1982, Helsinki University of Technology, Physical Metallurgy, Title of the thesis: "Effect of Low Temperature Deformation on Microstructure and Properties of Austenitic Stainless Steels"
Master of Sci. (Tech.), 1977, Helsinki University of Technology, Physical Metallurgy Title of the thesis: "Low-Cycle Fatigue Induced Deformation Structures in a Low-Carbon Alloy Steel"

PRESENT OCCUPATION

2011 - present	Professor, Materials Science, Aalto University School of Chemical Technology (professori, materiaalitiede)

PREVIOUS FULL-TIME OCCUPATIONS

2010	Professor, Materials Science, Aalto University School of Science and Technology
2008 - 2009	Professor, Materials Science, Helsinki University of Technology
2004 - 2007	Professor, Materials Science, Joint Professor of Helsinki University of Technology and VTT Technical Research Centre of Finland
1994 - 2003	Research Professor, Materials Technology, VTT Manufacturing Technology (1995-2001) and VTT Industrial Systems (2002-2003) (tutkimusprofessori)
1998 - 2001	Research Manager, Materials and Manufacturing Technology, VTT Manufacturing Technology (tutkimuspäällikkö)
1994 - 1997	Research Manager, Materials Technology, VTT Manufacturing Technology
1990 - 1993	Laboratory Director (Professor), Metallurgy Laboratory, VTT (laboratorionjohtaja, professori)
1985 - 1990	Section Leader, Metallurgy Laboratory, VTT (jaoston päällikkö)
1982 - 1985	Post Doctoral Associate (1982-83), Research Associate (1984-85), Department of Material Science and Engineering, Cornell University
1978 - 1981	Researcher, Laboratory of Physical Metallurgy, Helsinki University of Technology (tutkija)

ASSIGNED ADMINISTRATIVE TASKS

2011 - present	Vice Dean, Aalto University School of Chemical Technology (varadekaani)
2011 - present	Head, Department of Material Science and Engineering, Aalto University School of Chemical Technology (laitoksen johtaja)
2011	Chairman of Board, New Materials Center of Aalto University (johtokunnan puheenjoht.)
2010	Head, Department of Material Science and Engineering, Aalto University School of Science and Technology
2008 - 2009	Head, Department of Material Science and Engineering, Helsinki University of Technology
2004 - 2009	Board Member, New Materials Center, Helsinki University of Technology, chairman 2005-2008 (johtokunnan jäsen, puheenjohtaja)
2002 - 2003	Deputy Research Manager, Production Technology, VTT Industrial Systems (tutkimuspäällikön varamies)

DOCTORAL DISSERTATIONS SUPERVISED

2011	"Role of Twin Boundary Mobility in performance of Ni-Mn-Ga single crystals" I. Aaltio, Aalto University (accepted for publication)
2010	"Thermally induced ultra high cycle fatigue of copper alloys of high gradient accelerating structures" by MSc. (Tech.) Samuli Heikkinen, Aalto University
2007	"The crystal and magnetic microstructure of Ni-Mn-Ga alloys" by MSc. (Tech.) Yanling Ge, Helsinki University of Technology

2006	"Correlation of Material Characteristics and Wear of Powder Metallurgical Metal Matrix Composites" by MSc. (Tech.) Päivi Kivikytö-Reponen, Helsinki University of Technology
2005	"Diagnostic tools for HVOF process optimization" by Lic.Tech. Erja Turunen. Helsinki University of Technology
2005	"Production and Evaluation of Zirconia Based Composite Ceramics as a Coating Material" by M.Sc. (Tech.) Ari Hirvonen. Thesis for Doctoral degree at Osaka University, Japan (together with prof. K. Niihara)
2004	"Study of Novel Magnetic Shape Memory Ni-Mn-Ga Alloys", by M.Sc. (Tech.) Outi Söderberg, Helsinki University of Technology

ASSIGNED SCIENTIFIC TASKS

2012	Member, Int. Adv. Board, CIMTEC 2012, Symposium B - State-of-the-Art Research and Application of SMAs Technologies, Montecatini Terme, Italy
2011	Member, Int. Sci. Committee, 20th International Baltic Conference on Engineering Materials 2011, 27-28.10.2011, Kaunas, Lithuania
2011	Member, Int. Committee, 3rd International Conference on Ferromagnetic Shape Memory Alloys, July 18 - 22, 2011 Dresden, Germany
2011	Member, Int. Adv. Committee for the 12th International Symposium on Eco-materials Processing and Design (ISEPD2011), Chiang Mai, Thailand, 8-11.1.2011
2010	Member, Int. Sci. Adv. Committee for the ICC3, Nov. 14-18, 2010, Osaka, Japan
2010	Member, Committee of Tapani Järvinen's Fund for Environmental Technology
2009 to present	Director, Graduate School for Advanced Materials and Processes, Helsinki University of Technology
2009	Evaluator of study programs in Tallinn University of Technology, Estonia.
2009	Member of Int. Adv. Committee for the 18th Engineering Materials and Tribology, Baltmattrib 2009, Tallinn, Estonia, October 22-23, 2009, plenary presentation
2009	Member of Int. Adv. Committee for the SDMA, Bremen, Germany, September 7-9
2008 to present	TKK representative in the research council of FIMECC Oy, Member of the Steering Group for the Break-Trough Materials Theme
2008 to present	TKK representative in the steering group for the development of joint MSc program for Nordic Steel Masters
2008	Plenary lecture at the Conference on Hybrid Materials Processing-HyMaP'2008, Busan, Korea, 27-29.11.2009
2008	Member, International Advisory Committee for Interfinish 2008, the 17th World Interfinish Congress & Exposition, Busan, Korea, June 16th-19th2008
2008	Member, International Advisory Committee for the 9th International Symposium on Eco-materials Processing and Design, Changwon, Korea, 7-9.1.2008, invited presentation at the conference
2007	Examiner of PhD. Thesis of M.Sc. Feng Xiong, "Thermally Induced Fracture and Thermomechanical Properties of Ni-Mn-Ga FSMA Single Crystals" Nanyang University of Technology, Singapore
2006 to present	Convener, ISO TC 107 WG1 on Thermal Spraying
2006 - 2010	Board Member, Outokumpu Oyj Foundation
2006 to present	Board Member, Graduate School of New Materials and Processes, The Academy of Finland
2004 to present	Board Member, Advisory Board for the Innovation Activities at Rautaruukki Oyj
2004 to present	Board Member, New Materials Center, Helsinki University of Technology, chairman 2005-2008
1990 to present	Advisory Expert for Metallurgical Patents by the appointment of Helsinki Court of Justice
1995 to present	Member (Chairman in 1997 and 2003), Organizing Committee for Joint Nordic Conference in Powder Technology
2006	Member, International Advisory Committee for the 7th International Symposium on Spray Deposition, Bremen, 4-6.9.2006, invited presentation at the conference

2006	Member of International Advisory Committee for the 7th International Symposium on Eco-materials Processing and Design, Chengdu, China, January 8-11,2006, keynote presentation at the conference
2005	Opponent at Doctoral Dissertation: "Characterization and modelling of erosion wear of powder composite materials and coatings" by M.Sc. Renno Veinthal, Tallinn University of Technology
1999 - 2005	Representative of Finland, Management Committee for COST 526 Automatic Process Optimization in Materials Technology (APOMAT)
2004	Member, International Advisory Board for EnCera'2004, The 3rd International Symposium on the Science of Engineering Ceramics, Osaka, Japan, October 31 - November 3, 2004, invited presentation at the Conference
1998 - 2004	Representative of Finland, Management Committee for COST 523 on Nanostructural Materials
1989 - 2004	Member, Committee for Materials Technology, Technology Industries of Finland
2002	Opponent at Doctoral Dissertation: "Magnetic Shape Memory (MSM) Effect in Ni-Mn-Ga Alloy" by M.Sc. Yossef Ezer, Helsinki University of Technology
2000	Opponent at Doctoral Dissertation: "Effect of Nitrogen Content on Precipitation Behaviour and Properties of P/M High Nitrogen Austenitic Stainless Steels" by Lic.Tech. Jyrki Romu, Helsinki University of Technology
1998	Member of Board at Doctoral Dissertation: "Wave-actuated Preform Infiltration Routines in MMC Production" by DI Lars Pennander, Lund University
1993 - 1998	Representative of Finland, Management Committee for COST 512 on Modelling in Materials Science and Processing
1998	Member, Organizing Committee of the 5th International Conference on High Nitrogen Steels
1997 - 2006	Board Member, Graduate School of Metallurgy and Metals Technology, The Academy of Finland
1996	Opponent at Doctoral Dissertation:"Production, Microstructure, and Mechanical Properties of Iron-Based Composites" by M.Sc. Emmanouel Pagounis, Helsinki University of Technology
1991 - 1994	Co-ordinator, Joint Nordic Project, "Metal Composites for Nordic Industry"
1989	Opponent at Doctoral Dissertation: "Surface and Interface Studies by Auger Electron Spectroscopy" by Lic.Tech. E. Ristolainen, Helsinki University of Technology
1987 - 1988	Member, Committee for Surface Engineering, Federation of Finnish Metal Industries

OTHER SCIENTIFIC TASKS

1998 to present	Evaluator of project proposals for various programmes (EU, various national, Volkswagens Stiftung, ECACIMAT, VINNOVA, COST etc.)
1992 to present	Reviewer of articles submitted for publication in various journals (including J Surf Coat Techn., Adv. Mat., Wear, Mater Chem. Phys., Proc Estonian Academi Sci., Catalysis Comm., Mater. Sci. Eng., J. Eur. Ceramic Soc., etc.)

LONG TERM VISITS ABROAD

1996	Visiting Professor (4 we), Department of Mat. Sci. and Met., U of Wisconsin-Madison
1993	Visiting Professor (4 we), Department of Mat. Sci. and Engng, Cornell University
1986	Visiting Scientist (6 we), Department of Mat. Sci. and Engng, Cornell University

HONORS, PERSONAL GRANTS AND AWARDS

2010	Knight, first class, the Order of the White Rose of Finland (SVR R1) awarded by the President of Finland
2010	Award for the Teacher of the Year 2010, Student Guild, Department of Materials Science and Engineering
2009	Professor's Grant awarded for the active leadership of research groups and doctoral thesis by the Outokumpu Oyj Foundation
2000	Invitation to the Finnish Academy of Technical Sciences
1999	Award for the best poster at the Joint Nordic Conference in Powder Technology

1986	Travel grant for the research visit at Cornell University, Outokumpu Oyj Foundation
1981	Annual grant for the full-time post graduate studies, Outokumpu Oyj Foundation
1980	Annual grant for the full-time post graduate studies, Outokumpu Oyj Foundation
1979	Annual grant for the full-time post graduate studies, Outokumpu Oyj Foundation

RESEARCH GRANTS FROM 2007

2011 - 2014	**Mechanical properties of ALD thin films: analysis and applications**, research project funded by Tekes and industries; in co-operation with VTT
2011 - 2014	**Novel Responsive Surfaces based on Active Hybrid Coatings Utilizing Encapsulation Technologies,** research project funded by Tekes and industries; in co-operation with VTT and IST, Lisbon
2011 - 2013	**Nature Mimicking Damage Tolerant Composites,** Tekes – NSF research project funded by Tekes and industries; in co-operation with Aalto SCI, VTT and SUNY at Stony Brook
2011 - 2014	**Advanced functional solutions for Noise and Vibration reduction of machinery,** research project funded by Tekes and industries; in co-operation with VTT and KTH
2010 - 2014	**Low friction in hydraulics**, part of Fimecc's Demapp Program funded by Tekes and industries
2010 - 2014	**PM-products with new material and processing solutions**, part of Fimecc's Demapp Program funded by Tekes and industries
2010	**Spark plasma sintered low-friction alumina nano composites for high temperature use, and transparent silicon nitride composites with boron nitride**, Finnish Academy funding for Korea co-operation
2009 - 2012	**Materials of Metallic Energy Roof,** research project funded by Tekes and industries; in co-operation with VTT
2009 - 2011	**Regenerative biofilm sensors,** ERANET-research project funded by Tekes and industries; in co-operation with VTT, Trinity College, Dublin and Centre for Research in Engineering Surface Technology, Dublin
2009	**Investigation of the mobility and structure of twin boundaries in magnetic shape memory compounds on different scales and modeling the shape memory behavior with FEM,** funded by The Academy of Finland, Co-operation project with the Institute of Physics, ASCR, Prague, Czech Republic
2009	**Investigation of the mobility and structure of twin boundaries in magnetic shape memory compounds on different scales and modelling the shape memory behavior with FEM,** funded by The Academy of Finland, Co-operation project with the Institute of Physics, ASCR, Prague, Czech Republic.
2008-2011	**New concepts for high temperature low friction materials**, research project funded by Tekes
2008-2010	**Production of nano-structured powders for thermal spraying by using water-soluble raw materials**, research project funded by Tekes.
2008-2009	**Stability of the functional properties of Ni-Mn-Ga based alloys**, funded by The Academy of Finland, Co-operation project with the Institute for Metal Physics, Kiev, Ukraine.
2007-2010	**Development of smart magnetic shape memory composites and their applications**, research project funded by Tekes.
2007-2009	**Tools for modelling, design and control of smart structural systems based on shape memory alloys: material algorithms, finite element methods, experiments**, support project for the MAFESMA project in S3T Smart Materials and Structures Program funded by The Academy of Finland and European Science Foundation.
2007-2010	**Research and development project of the spark plasma sintering technology**, research project funded by Tekes.
2007-2009	**Protective materials modified with the doped sol-gel nanoparticles**, research project funded by Tekes.
2007-2008	**Added-value for new metal products by hybrid coatings**, part of a group research project funded by Tekes.
2007-2008	**Functional properties of doped silica particles and thickness of titania surfaces prepared with sol-gel method**, The Academy of Finland. Co-operation with Wroclaw University of Technology, Wroclaw, Poland.
2007-2008	**Functional properties of ternary Ni-Mn-Ga and quaternary Ni-Mn-Ga-X alloys**, The Academy of Finland. Co-operation project with the Institute for Metal Physics, Kiev, Ukraine.
2007 - 2008	**Effect of high anisotropic thermal expansion on structure in the Ni-Mn-Ga-(X) single crystals possessing multifunctional properties**, part of the INTAS project funded by European Commission.
2004 - 2006	**Fifteen (15) grants obtained for funding of research at Helsinki University of Technology**
1991 - 2005	**Responsible leader of 38 different research projects at VTT**