

About the Authors

For those contributing original material to this volume.

Daniel Batazzi

Daniel Batazzi is R&D project leader at Åkers Belgium. He has an M.S. degree in metallurgical engineering and is an expert on metallurgical investigation techniques. For 30 years he has provided technical assistance and development in roll manufacturing for the cold rolling mill process. His other achievements include implementation of new backup roll grades with improved resistance against rolling contact fatigue, and breakthrough technology of semi-HSS and HSS rolls for cold rolling applications.

Stefan Berger

Stefan Berger is general manager — technical sales, hot strip mills and Steckel mills, SMS Siemag AG Germany.

Christian Bilgen

Christian Bilgen is general manager — CSP® technology, SMS Siemag AG, Germany.

Walter Blejde

Walter Blejde is director of technology for Castrip LLC. He has a B.E. (hons) and M.E. in chemical engineering from the University of New South Wales. He is a Chartered Professional Engineer registered with the Institution of Engineers Australia, a member of the Australian Institute of Energy and also the AIST. Blejde has worked in various process engineering and plant management roles for BHP Steel (later known as BlueScope Steel) in the coke and sinter plant, BOF steelmaking, continuous slab casting, rolling mills (including plate, hot strip and long products), and power and energy generation and distribution. Since 1989, he has been involved in the development of thin strip casting technology, initially at a 5-ton pilot-scale plant, then through to a commercial-scale 50-ton development plant at BHP Steel's Port Kembla Steelworks. More recently Blejde has been involved in the construction and commissioning of the world's first two commercial strip casting plant constructed by Nucor Steel. He was awarded the Tadeusz Sendzimir Memorial Medal (along with Dr. H. Fukase) in 2008 for his contribution toward the development of thin strip casting technology. He is author or co-author of more than 40 patents in the field of thin strip casting.

Anders Carlestam

Anders Carlestam is principal process engineer at SSAB. He has worked for SSAB Oxelösund works since 1988. He has developed the layout and design of quench lines within SSAB, including process control of furnaces, quench units and levelers. Carlestam holds an M.Sc. degree in materials science and engineering from Royal Institute of Technology in Stockholm (KTH), Sweden.

Kristin R. Carpenter

Kristin R. Carpenter is product development metallurgist for the Hot Rolled Product Development Department of BlueScope Steel. He received his B.E. degree in material engineering in 1998 and a Ph.D. from the University of Wollongong in 2005, studying the effects of Nb and Ti microalloying on continuously cast

steel. He was a postdoctoral fellow at the BlueScope Steel Metallurgy Centre, University of Wollongong, researching in the areas of dross formation in hot-dip galvanizing, Castrip simulations, hot ductility of micro-alloyed steel and welding fume formation. After joining BlueScope Steel in 2008, he developed expertise in the product development of thin strip steels produced with the Castrip process, line pipe steels and plate product metallurgy. Recently he received the Sir William Hudson Memorial Award; best published research paper (2010), Gilbert R. Speich Award (2010) and Hunt-Kelly Outstanding Paper Award (2011).

Daniel G. Edelman

Daniel G. Edelman received a B.S. degree in metallurgical engineering from Michigan Technological University. He is currently the UCS Development Metallurgist for Nucor Steel–Indiana. He joined Nucor Steel–Indiana in 1999 and has worked in the hot mill, cold mill, technical services and the Castrip facility. He started his current position at the Castrip facility in 2007. Along with other members of the UCS product development team in 2010, he received the Gilbert R. Speich Award and the 2011 Hunt-Kelly Outstanding Paper Award (both from AIST). The primary focus of his work has been in product development of sheet steel.

Andres Esteban

Andres Esteban is employed in the hot strip mill at Ternium Siderar, Buenos Aires, Argentina.

Włodzimierz Filipczyk

Włodzimierz Filipczyk is currently employed by TMEIC Corp. – Roanoke, Va., USA, as a manager for performance analysis and development. His field of specialty is computer control systems for metal rolling applications. He has a master's degree in electrical engineering from Silesian Technical University – Gliwice, Poland. He started his career as a software designer in the Engineering Office for Iron and Steel Industry in Poland, then held various positions in General Electric Industrial Control Systems in Salem, Va. During his career, he participated in the design, testing and commissioning of more than 50 process control systems for various rolling mills all over the world.

Claude Gaspard

Claude Gaspard is vice president of rolls technology for Åkers AB, Belgium. He received his M.S. and Ph.D. degrees in material science and physical engineering from Liege University, Belgium. He also earned a degree in management from ELM Institute, Liege, Belgium. For the last 40 years, he has been involved in the innovation and development of roll manufacturing for the hot and cold rolling mill process, as well as development of deep and ultra-deep hardened rolls for cold rolling applications. Other achievements are in the areas of new backup roll grades with improved resistance against rolling contact fatigue, and break-through technology of high-strength steel and semi-HSS rolls for cold rolling applications.

Christian Geerkens

Christian Geerkens is executive vice president — steelmaking/continuous casting technology, SMS Siemag AG, Germany.

Ralf Gehle

Ralf Gehle is manager — drives/components design, SMS Siemag AG, Germany.

Andrzej Groch

Chief engineer for SMS Siemag LLC and a member of the AIST Plate Rolling Subcommittee, Dr. Groch has worked for major steel and aluminum mill suppliers for the last 28 years. He has developed and delivered computer-based process control systems for many flat rolling mills around the world, including wide Steckel mills for rolling plates and coils, as well as twin-stand Steckel mills for rolling thin coils. He has also published numerous scientific and technical papers. Dr. Groch was educated in the field of automation in Poland and in England, holds a Ph.D. in electrical engineering from the Technical University of Gdansk, Poland, and was a post-doctoral Fulbright scholar at Carnegie Mellon University.

Wan Hailong

Wan Hailong is employed by Tangshan Iron & Steel Co. Ltd., China.

Stephen P. Jekielek

Stephen Jekielek started working for ITT Telecommunications in Guelph, Ont., Canada, in 1977 after graduating from the University of Waterloo Cooperative Program with a degree in electrical engineering. He

joined the Canadian General Electric Co. in Peterborough, Ont., in 1978 as a design engineer in General Purpose Control. He later transferred to the Drive Systems Department, where he did system engineering and project management for the metals industry. In 1991, Jekielek accepted a position as an application engineer with GE Drives Systems in Salem, Va., and continued work in the metals industry, primarily process lines. Jekielek joined GE-Toshiba, a joint venture of the General Electric Co. and Toshiba Corp., when it was formed in 2000, and he is currently a senior application engineer for TMEIC Corp. (a group company of Toshiba Mitsubishi Electric Industrial Corp.), located in Roanoke, Va.

Olaf Jepsen

Olaf Jepsen is vice president — research and development, SMS Siemag AG, Germany.

Eckehard Jung

Eckehard Jung is senior project manager — drives/drive components sales and service, SMS Siemag AG, Germany.

Jared Kaufman

Jared Kaufman is currently the vice president of technical services at Tenova Core, Pittsburgh, Pa. He is responsible for the aftermarket activities that support Tenova Core's reheat and specialty furnace, heat treat furnace, and meltshop equipment business units. Kaufman has 15 years of experience working on industrial furnace equipment for the metals industries, as proposal engineer, project engineer, project manager and department manager. Additionally, he is an adjunct faculty member in the Natural Sciences and Engineering Technology Department at Point Park University. Kaufman holds a B.S. degree in mechanical engineering from Penn State University, an M.S. degree in mechanical engineering from Rensselaer Polytechnic Institute, and an M.B.A. from the University of Pittsburgh.

Chris Killmore

Chris Killmore is manager — hot rolled product development in the Research Department at BlueScope Steel. He has a bachelor's degree in metallurgy from the University of Wollongong (1978). Killmore has been closely involved in product development of steel products at BlueScope Steel for more than 30 years covering a wide range of products and applications. These include HSLA steels for oil and gas pipelines, offshore platforms, ship building, high-strength structural plate, gas storage tanks and pressure vessels, as well as cold and hot rolled strip for automotive applications, tinplate products and high strength reinforcing bar. He has been closely involved with the development and implementation of thermo-mechanical controlled processing of heavy plate and hot rolled strip in support of HSLA steel developments. For the past eight years, he has been closely involved with the product metallurgy of strip cast steels, in particular the product development of a range of new HSLA grades. He has authored or co-authored more than 30 technical papers and is the co-inventor of five patents relating to strip cast products. He was the co-recipient of the Richard J. Fruehan (2008) and Gilbert R. Speich (2010) best paper awards (AIST) and the Hunt-Kelly (2011) Outstanding Paper Award (AIST).

Christoph Klein

Christoph Klein is general manager — technical sales, hot rolling mills/coordination CSP[®], SMS Siemag AG, Germany.

Christian Klinkenberg

Christian Klinkenberg is deputy general manager — testing of new CSP[®] technologies, SMS Siemag AG, Germany.

Stephan Krämer

Stephan Krämer is executive vice president — hot/cold rolling technology, SMS Siemag AG, Germany.

Hiroaki Kuwano

Hiroaki Kuwano is technical advisor and certified specialist for Hydraulics and Control Engineering, Logistics System Operations, IHI Co. Ltd. He formerly served as general manager of the Rolling Mill Engineering Department for IHI.

Peter Lixfeld

Peter Lixfeld graduated as a mechanical engineer (1993) from the University of Siegen (Germany). Since 1994, he has worked at the R&D Department of SMS Siemag AG in the field of rolling technology and

development of process models, mainly for hot rolling steel and aluminum mills. For the last 18 years, he has been deeply involved in the development of profile and flatness control and the application of CVC®plus technology in hot reversing rolling mills.

Rama Mahapatra

Rama Mahapatra is chief metallurgist for Castrup LLC. After completion of his Ph.D. in metallurgical engineering from University of British Columbia, Canada, he joined BHP Research in Australia. His research work focussed on heat transfer, solidification phenomena in casting technologies. Since 1994 he has been actively involved in the development of thin strip casting technology, working in both pilot and commercial plants with a focus on development of metallurgical fundamentals of strip casting process. He is a member of AIST and has been a lecturer at AIST's Making, Shaping and Treating of Steel: 101 course. He is a recipient of the ISS Robert Hunt Medal and has co-authored about 30 patents in the area of thin strip casting.

William Malan

William Malan is general manager — drives/drive components sales and service, SMS Millcraft LLC, USA.

Gary McQuillis

Gary McQuillis is currently a manager of steelmaking technology for Nucor Steel Corp. He has a degree in chemical engineering from Carnegie Mellon University. He has held various engineering and management roles in electric steelmaking and continuous casting for the production of structural beams. He was the project manager and first operations manager of the Nucor strip casting plant at Blytheville, Ark., which was commissioned in October 2009. He has authored or co-authored more than 10 patents.

Jürgen Müller

Jürgen Müller is general manager — technical sales, CSP® casters, SMS Siemag AG, Germany.

Jim Murphy

Jim Murphy is the current product manager for hot steel lubricants (North America) for Quaker Chemical Corp. He has served in the metals industry for 36 years, the last 20 years devoted to developing equipment and lubricants for steel rolling. He is an organic chemist educated at the Philadelphia College of Textiles and Science (now Philadelphia University). He is an active member of AIST, currently serving as papers chair for the Hot Sheet Rolling Technology Committee.

Ken Okamoto

Ken Okamoto is chief specialist of engineering for Toshiba Mitsubishi-Electric Industrial Systems Corp. (TMEIC) in Japan. He has worked for electrical equipment and automation system suppliers of the steelmaking process. He has developed and delivered industrial automation and drive systems for many steel plants around the world.

Peter Osgood

Peter Osgood is manager — Morgoil development, Siemens Industry Inc., USA.

Reinhard Rinn

Reinhard Rinn earned his degree in computer science in 1987 from RWTH Aachen, Germany. The same year, he joined Parsytec GmbH, at the time a manufacturer of supercomputers, as a computer systems architect. Responsibility morphed from design and development of operating system software for massively parallel supercomputers to establishing Parsytec's U.S. subsidiary near Chicago. In the late 1990s, Rinn accompanied the company during its strategic switch toward surface inspection, at that time seen as an application of supercomputing. Since 2005, he has been the owner of Metal Technology Innovations LLC, a representative of European companies that focus on equipment monitoring strip quality in the rolling and finishing process (surface, gauge, shape, etc.). He is the author of many papers addressing high-performance computing, surface inspection, and the use of quality data for yield management and process improvements.

Jose M. Rodriguez-Ibabe

Jose Rodriguez-Ibabe earned his degree in industrial engineering (1980), his master's degree in metallurgy (1981) and his doctor of engineering degree (1984) from the University of Navarra, Spain. In 1984 he joined CEIT Research Institute, San Sebastian, Spain, and he is currently senior researcher of the Thermomechanical Treatments Group. He is also professor of materials science and metallurgy and head of the Materials Department in Tecnum, High Engineering School, University of Navarra. His fields of research are the

thermomechanical processing of steels and composition-processing-microstructure-mechanical property relationships. He is author of 170 technical papers in international journals and conferences, 65 technical papers in national journals and conferences, 16 technical documents and books and has graduated 17 doctoral students. He was awarded the Meritorious Award for the Best Bar Product and Forging Paper (ISS, 2000), the Vanadium Award (IoM, 2000), the Charles Hatchett Award (IoM³, 2003) and the Gilbert R. Speich Award (AIST, 2012 and 2013).

Dieter Rosenthal

Dieter Rosenthal is a member of the board of SMS Siemag AG, Germany.

Gabriel Royo

Gabriel Royo is vice president metallurgical services for Siemens Industry Inc. He heads the “Metallurgical Services-MSS” global unit, responsible for worldwide services for long and flat rolling mills and processing lines. He leads a global team with multiple locations in USA, France, Germany, U.K., Austria, China, India, Brazil and Italy. Prior to Siemens, Royo was senior vice president — worldwide services for Morgan Construction Co., Worcester, Mass., USA. He worked for Intel Corp. as installation/qualification director. He also worked at Veeco, a semiconductor capital equipment company, as senior vice president of worldwide services. Royo has extensive experience in managing services and global organizations for capital equipment. He holds an M.S. degree in industrial and management systems engineering from the University of Nebraska–Lincoln, USA, and a B.S. degree in industrial engineering.

Mike Schueren

Mike Schueren has been the Castrip manager at Nucor’s Crawfordsville, Ind., plant for the last seven years. Prior to this, he held various technical and management roles in steelmaking and continuous casting of slabs for Nucor and AK Steel. He has a degree in material science and engineering from The Ohio State University.

Naoki Shimoda

Naoki Shimoda is deputy senior manager of R&D section for Toshiba Mitsubishi-Electric Industrial Systems Corp. (TMEIC) in Japan and a member of AIST. He has worked for electrical equipment and automation system suppliers of the steel rolling process since 1992. He has developed and delivered process control systems for many hot and cold strip rolling mills around the world, including steel and aluminum rolling mills. He was educated in the field of science in Japan, and received a master’s degree from the Graduate School of Science, Kyoto University, Japan.

Bas Smeulders

Bas Smeulders is currently employed as a research scientist at Quaker, in the Netherlands, specializing in corrosion, tribology and cold rolling lubrication technology. He has a degree in chemistry from the University of Nijmegen and subsequently received a Ph.D. on rheology from the University of Twente, both in the Netherlands. Before joining Quaker, he held a post-doctorate position on the subject of rheology at the University of Cambridge, U.K., within the Department of Chemical Engineering.

Christoph Sundermann

Christoph Sundermann is general manager — drives/drive components, SMS Siemag AG, Germany.

Thomas F. Tainer

Thomas Tainer began working for the General Electric Co. in Cleveland, Ohio, after graduating from the University of Notre Dame with an electrical engineering degree in 1978. He worked as a commissioning engineer, control design engineer and project manager on a broad range of industrial drive and automation projects in metal rolling and metal strip processing. Tainer accepted a position as a senior application engineer with GE Drive Systems in Salem, Va., in 1991, specializing in strip processing line drive and automation systems. In 1994, he accepted a position as a senior development engineer, focusing on the development of new control concepts relating to strip transport control and line tension control for metal strip processing lines. He later held management positions in the application and design engineering departments. Tainer joined GE-Toshiba, a joint venture of the General Electric Co. and Toshiba Corp., when it was formed in 2000. Tainer is currently the director of engineering for TMEIC Corp. (a group company of Toshiba Mitsubishi Electric Industrial Corp.), located in Roanoke, Va.

Ronald I. Tessendorf

Ron Tessendorf began working for the General Electric Co., Schenectady, N.Y., after graduating from the University of Wisconsin with an electrical engineering degree in 1969. Tessendorf also holds a master's of industrial engineering degree from Union College and has taken and taught numerous company courses on a wide range of subjects. A large variety of papers have been presented at OPMA, IEEE, AISE and AIST functions representing the mining, paper, testing and metals industries. He helped to develop and organize the AIST Process Systems Specialty Technical Conference, beginning in 2009. He has held several officer positions in IEEE and AIST, along with engineering and management positions in General Electric's Large AC Motor and Generator Department, Industrial Sales and Engineering Operation, Drive Systems Product Department, DC Motor and Generator Department, Electrical and Electronic Service Department, Drive Systems Department and Industrial Systems Department. Tessendorf presently works for TMEIC Corp., a successor joint-venture company of the General Electric Co., since 2000.

José Tinoco

José Tinoco formerly served as technical services manager and R&D manager with Åkers AB, Sweden. He now serves as R&D manager at Boliden, Stockholm, Sweden. He received an M.S. degree in materials science from Universidad Simón Bolívar, a Ph.D. in mechanical and materials engineering from KTH Royal Institute of Technology, and an M.B.A. from Handelshögskolan i Stockholm. He has been a project manager and expert in the area of copper and alloy casting in OFTA (Outokumpu Fabrication Technologies AB/Outokumpu Nordic Brass AB). His experience includes the development of cast work roll grades for hot rolling application in the steel industry (Åkers Sweden).

Wladyslaw Turowski

Wladyslaw Turowski is currently employed by TMEIC Corp. – Roanoke, Va., USA, as a chief specialist and senior sales manager. His field of specialty is metal rolling process technology, a.k.a. process models. He has a master's degree in electrical engineering from AGH University of Science and Technology in Krakow, Poland. He started his career as a software designer in the Automation Department of Huta Katowice Steel in Poland, then held various positions in General Electric Industrial Control Systems in Salem, Va. During his career, he participated in the design, testing and commissioning of numerous process control systems for various rolling mills throughout the world.

Liu Wenzhong

Liu Wenzhong is part of the National Engineering Research Center for Advanced Rolling Technology, University of Science and Technology Beijing, China.

Peter Woodberry

Peter Woodberry is a process development metallurgist for Castrip LLC and has been working on strip casting since 1995. Before that he was at BHP Research, working on slab casting technology, with specific interest in cracking and bulging. He graduated in metallurgy from Royal Melbourne Institute of Technology in 1984.

Mark E. Zipf

Mark Zipf leads the Control, Automation & Drive Systems Technologies group at Tenova I2S. He formerly served as the director of electrical engineering for Tenova I2S. Mark has more than 25 years of experience in the cold reversing mill manufacturing industry, with extensive field and operations experience around the world. He received his Ph.D. in electrical engineering from the University of Pittsburgh, and has over 75 technical publications. His research interests involve mathematical modeling and simulation, with a special focus on advance shape/flatness control, transverse deformation modeling, and developing methods for characterizing shape actuation capabilities for use in coordinated pass scheduling with shape target progressions. Mark is a member of AIST and lectures in their Cold Rolling Fundamentals and Process Systems training courses. He is also a co-principal investigator on National Science Foundation (NSF) grants, investigating the impact of uncertainties and variability in precision rolling processes.