
Prof. Peter KRAJNIK Ph.D.



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Date/country of birth: 24 October 1977 / Slovenia
Citizenships: Slovenian / Croatian / Swedish

SUMMARY:

Peter Krajnik is a graduate in mechanical engineering at the University of Ljubljana, where he habilitated after completing his B.Sc. (2001) and Ph.D. (2007) degrees. During his graduate studies, he was a visiting researcher at the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University. In 2009 he joined KTH Royal Institute of Technology in Stockholm, as a Marie Skłodowska-Curie fellow. He also spent time working in the automotive industry – developing advanced technologies for powertrain production at Scania CV AB (Volkswagen Group), before joining Chalmers University of Technology at which he is now professor of manufacturing technology. He is an author of more than 70 publications and 5 patent applications in the area of manufacturing technology.

Major field of interest: Manufacturing technologies

Specialties:

- Manufacturing; Technology; Operations; Automotive
- Metal cutting; Machining; Machine tools; Grinding; Abrasives
- Research; Higher education; Project management

Selected publications: <http://scholar.google.se/citations?user=NxV0v7EAAAAJ&hl=en>

EDUCATION:

- **(Oct 1996 - Jun 2001) B.Sc. in Automation, Production Cybernetics and Mechatronics**
Faculty of Mechanical Engineering, University of Ljubljana, Slovenia
- **(Jan 2003 - Jun 2007) Ph.D. in Production Engineering**
Faculty of Mechanical Engineering, University of Ljubljana, Slovenia
- **(May 2009 - Apr 2011) Postdoctoral in Sustainable Manufacturing**
Department of Production Engineering, Royal Institute of Technology, Sweden
- **(Jun 2014 -) Executive in Management and Leadership**
Sloan School of Management, Massachusetts Institute of Technology, U.S.A.

EXPERIENCE / APPOINTMENTS:

- **(Aug 2015 -) Chalmers University of Technology, Gothenburg, Sweden**
Professor of Manufacturing Technology

Professor of Manufacturing Technology and research division head at the Department of Materials and Manufacturing Technology. Scientific and strategic adviser of the Chalmers Metal Cutting Research and Development Center (MCR). Director of graduate studies in Manufacturing Technology.

- **(Jan 2013 - Aug 2015) Scania CV AB, Södertälje, Sweden**
Research Engineer

Project and research engineering in the area of engine component manufacturing. Development and implementation of advanced abrasive technologies for crankshafts, camshafts, and cylinder liners. Manufacturing performance transformation, capacity building and patenting of innovative technology. Specialized in-company training courses. Representing Scania in external networks and developing research agenda within engine production.

- **(May 2009 - Jun 2012) Royal Institute of Technology, Stockholm, Sweden**
Postdoctoral Fellow / Senior Researcher

Development of European research projects, professional training and part-time technology consulting to Scania CV AB. Project management and research within Strategic Vehicle Research and Innovation program. Nanofluid-based lubricants (design, integration with production technologies, and new product feasibility research). Conceptualization of a novel "Resource Conservative Manufacturing" model. Co-teaching M.Sc. courses.

- **(Aug 2008 - Jan 2009) Grindaix GmbH, Aachen, Germany**
R&D Consultant

Customization of technology-based software for production and resource planning. Strategies for truing/dressing technique in centerless grinding.

- **(Jan 2008 -)** **University of Ljubljana, Ljubljana, Slovenia**
Associate Professor

Habilitated first in 2008 as an Assistant Professor. Supervision of B.Sc., M.Sc. and Ph.D. theses. Lecturing a course in Machine Tools (B.Sc. and M.Sc.). Coordinated the "Middle Eastern Partnership in Sustainable Engineering", modernizing higher education in Jordan and West Bank, developing M.Sc. curricula and professional training. Associate Professor since 2014.

- **(Jan 2006 - Dec 2007)** **Laboratory for Machine Tools and Production Engineering WZL, RWTH Aachen, Germany**
Visiting Researcher

Specialization in centerless grinding technology. Solutions of industrial grinding problems for machine-tool builders and automotive OEMs.

OTHER PROFESSIONAL / SYNERGISTIC ACTIVITIES:

- **(Mar 2015 -)** **CIRP, Paris, France**
Associate Member

Associate Member of the International Academy for Production Engineering (CIRP) representing Croatia. Promotion of research and development among members from academia and industry. Dissemination of research, primarily through scientific group "Abrasive Process" (STC-G).

- **(Mar 2014 -)** **The International Grinding Institute, New York, U.S.A.**
Co-founder / Member of the International Advisory Board

Advancing the professional standards of industrial grinding practitioners through the establishment of certification program. Engaging international experts in the field to develop examinations and setting policy for certification. Transfer of technology from research to real-world production.

- **(Aug 2013 -)** **International Journal of Machine Tools & Manufacture**
Member of the Editorial Board

Peer reviewing of new research related to: mechanics of metal cutting; scientific development of machines. Helping in improving the journal standards, i.e. monitoring the editorial policy in terms of its coverage and the quality of papers. Contribution to editorial decision- and policy-making.

- **(Dec 2012 -)** **European Commission, Brussels, Belgium**
Independent Expert

Assisting the European Commission in the evaluation and review of large-scale integrating research projects in EU Research and Innovation programs (FP7 and H2020). Program management and portfolio analysis.

AWARDS AND HONORS:

- Marie Curie Fellow (awarded with the Intra-European Fellowships for Career Development in the field of Sustainable Manufacturing, 2009)
- Best paper on “SUSCRYMAC-Sustainable Cryogenic Machining”, The 3rd International Swedish Production Symposium (2009)
- Magna cum Laude on Ph.D. thesis (at University of Ljubljana, 2007)

SCIENTIFIC PEER-REVIEWS / EVALUATIONS:

- International Journal of Machine Tools & Manufacture (Elsevier, Netherlands)
- Journal of Materials Processing Technology (Elsevier, Netherlands)
- Journal of Cleaner Production (Elsevier, Netherlands)
- Journal of Engineering Manufacture (Professional Engineering Publishing, UK)
- European Science Foundation (Strasbourg, France) – Organizational evaluation of the Slovenian Research Agency ARRS

SCIENTIFIC COMMITTEES:

- CIRP Conference on Surface Integrity
- CIRP-sponsored Global Conference on Sustainable Manufacturing
- International Conference on Management of Technology
- International Conference on Sustainable Life in Manufacturing

SKILLS / EXPERTISE:

- Manufacturing technology (metal cutting; machine tools; grinding; abrasives)
- Manufacturing operations (lean manufacturing; value chain management)
- Sustainable manufacturing (circular manufacturing; cleaner production; energy efficiency; resource conservation; life cycle assessment)
- Nanotechnology (non-toxic nano-additives for lubricants; modeling/design frameworks for micro-nanotechnology products)
- Research methods (analytical modeling; DoE; simulation; optimization)
- Project and research management (10-year proven track record in academia, industry, and public research agencies)
- Higher education and lifelong learning (curricula development; professional training; certification)

MACHINING / ABRASIVE TECHNOLOGY RESEARCH:

- Engine block machining (milling, boring, drilling, threading, reaming)
- Cryogenic machining (e.g. superalloys, bearing steel, CGI)
- High-pressure jet assisted machining (e.g. turning of superalloys)
- Honing of cylinder liners and gears
- Superfinishing and tape-finishing of camshafts, crankshafts and gear axles
- Plunge- (infeed) and throughfeed centerless grinding (e.g. bearing rings)
- Non-round cylindrical grinding (e.g. HSS punching tools, cam lobes)
- Tool grinding (e.g. tungsten carbide, PCBN)
- Temperature-controlled grinding of crankshafts (e.g. crankpins)

PATENT APPLICATIONS:

Swedish Patent and Registration Office:

- Heat exchange fluid comprising layered structured particles in a base liquid, method of preparation thereof and its application (2012 through KTH)
- Metalworking fluid comprising layered structured particles in a base liquid, method of preparation thereof and its application (2012 through KTH)
- Method of grinding a workpiece and method for determining processing parameters (2014 through Scania CV AB)
- Lubrication and cooling device (2015 through Accu-Svenska AB)

European Patent Office:

- Method of grinding a workpiece having a cylindrical bearing surface and method for determining processing parameters (2015 through Scania CV AB)

TEACHING:

Chalmers University of Technology, Sweden:

- Manufacturing Processes (M.Sc.)
- Metal Cutting (M.Sc.)

University of Ljubljana, Slovenia:

- Machine Tools (B.Sc. and M.Sc.)

KTH Royal Institute of Technology, Sweden:

- Advanced Manufacturing Processes (M.Sc. / 2009-2012)
- Manufacturing Technology (B.Sc. / 2009-2012)

RESEARCH COLLABORATORS:

Prof. M. Nicolescu & Dr. A. Rashid (KTH, Sweden), Prof. Ibrahim Sadik (Sandvik Coromant, Sweden), Prof. Jacek Kaminski (SKF, Sweden), Prof. G. Seliger (Technical University Berlin, Germany), Prof. F. Klocke (WZL RWTH Aachen, Germany), Prof. I.S. Jawahir (University of Kentucky, USA), Prof. E. Kuljanic (University of Udine, Italy), Prof. V. Starkov (Moscow State Technological University, Russia), Prof. A. Yui (National Defense Academy, Japan), Dr. F. Hashimoto (The Timken Company, USA), Dr. J. Badger (The International Grinding Institute, USA)

LANGUAGES:

- Slovenian - (Native proficiency)
- Croatian - (Bilingual proficiency)
- English - (Professional proficiency)
- Swedish - (Limited Working proficiency)
- German - (Limited Working proficiency)