

## **Kornel F. EHMANN**

Mechanical Engineering Department, Northwestern University

### **a) Professional Preparation:**

- B.S. (1970), Mechanical Engineering, University of Belgrade, Yugoslavia.
- M.S. (1974), Mechanical Engineering, University of Belgrade, Yugoslavia.
- Ph.D. (1979), Mechanical Engineering, University of Wisconsin - Madison.

### **b) Appointments:**

- 2009- Visiting Professor, University of Belgrade, Serbia
- 2005- Adjunct Chair Professor, Chung Yuan Christian University, Chung Yuan, Taiwan
- 2004- Adjunct Professor, Dept. of Mechanical and Industrial Engineering  
University of Illinois at Urbana/Champaign
- 2004- Distinguished Honorary Professor, Department of Mechanical Engineering  
Indian Institute of Technology (IIT) – Kanpur, India
- 1990 - Professor, Department of Mechanical Engineering  
Northwestern University, Evanston, Illinois.
- 1985 - 1990 Associate Professor, Department of Mechanical Engineering  
Northwestern University, Evanston, Illinois.
- 1981 - 1985 Assistant Professor, Department of Mechanical Engineering  
University of Wisconsin-Madison, Madison, Wisconsin.
- 1980 - 1981 Research Associate, Department of Mechanical Engineering  
University of Wisconsin-Madison, Madison, Wisconsin.
- 1977 - 1979 Research Assistant, Department of Mechanical Engineering  
University of Wisconsin-Madison, Madison, Wisconsin.
- 1970 - 1976 Assistant Lecturer, Department of Mechanical Engineering  
University of Belgrade, Yugoslavia.

Dr. Ehmann's main research interests are in the interrelated areas of machine tool structural dynamics, metal cutting dynamics, computer control of machine tools and robots, accuracy control in machining, metal cutting processes, and micromanufacturing. General Dynamics, General Electric, General Motors, Ford, Chrysler, IBM, Ingersoll, SpeedFam, American Tool, LLNL, and others have supported his work. Dr. Ehmann has published over 250 articles and supervised over 40 MS and 40 Ph.D. students in these areas. Dr. Ehmann is currently the Editor SME/Elsevier's "Manufacturing Letters." He is the past Chair of the Manufacturing Engineering Division of ASME and is the past President of NAMRI/SME. He is a Fellow of ASME and SME, and the recipient of the SME Gold medal and of the ASME Milton Shaw research medal.

### **c) Products:**

A list of relevant and recent publications follows:

#### **Relevant:**

- 1) "Laser-induced plasma micro-machining (LIPMM) for enhanced productivity and flexibility in laser-based micro-machining processes," CIRP Annals - Manufacturing Technology 62 (2013) 211–214, (with R. Malhotra, I. Saxena and J. Cao) (2013)

- 2) "Simulation of Machined Surface Topography in End Milling Processes Using a Shear-Plane Based Cutting Force Model," Proc. Instn Mech. Engrs Part B: Journal of Engineering Manufacture, 218(12), 1767-1793 (with C.H. Chiou, M.S. Hong) (2004)
- 3) "The Mechanics of Machining at the Micro-Scale: Assessment of the Current State-of-the Science," Transactions ASME Journal of Manufacturing Science and Engineering, 126, 666-678 (with X. Liu, R. DeVor, S. Kapoor) (2005).
- 4) "Surface Texturing of Tribological Interfaces Using the Vibromechanical Texturing Method," ASME Journal of Manufacturing Science and Engineering, 131 / 061005-1 - 061005-8, (w/ A. Greco, S. Raphaelson, Q.J. Wang, C. Lin) (2009)
- 5) "An Investigation of Deformation-based Micro Surface Texturing," Journal of Manufacturing Science and Engineering DECEMBER 2011, Vol. 133 / 061017-1, [DOI: 10.1115/1.4005459] (with R. Zhou, J. Cao, K. Ehmann, C. Xu) (2011)

Other:

- 1) "Generation of Engineered Surfaces by the Surface-Shaping System," Intl. Journal of Machine Tools and Manufacture, 35(9), 1269-1290 (with M.S. Hong) (1995).
- 2) "Laser-Induced Plasma Micro-Machining," Proceedings of the 2010 ISFA 2010 –Int. Symposium on Flexible Automation, Tokyo, Japan July 12-14, (with K. Pallav) (2010)
- 3) "An Analysis of the Surface Generation Mechanics of the Elliptical Vibration Texturing Process," International Journal of Machine Tools and Manufacture, (with G. Ping) (2013) (in print)
- 4) "Laser Surface Texturing of Medical Needles for Friction Control," International Journal of Mechatronics and Manufacturing Systems, (with P. Han, J. Kim, and J. Cao) (2013) (in print)
- 5) "Tool Embedded Thin Film Microsensors for Monitoring Thermal Phenomena at Tool-Workpiece Interface During Machining," Journal of Manufacturing Science and Engineering, APRIL 2011, Vol. 133 / 021007-1, DOI: 10.1115/1.4003616], (with D. Werschmoeller and X. Li) (2011)

**d) Synergistic Activities and Awards:**

National Boards and Committees:

- 1990 - 1995 Executive Committee Production Engineering Division of ASME, (Division Chair, 1994 -1995).
- 2002 - Technical Editor: Trans. ASME, J. of Manufacturing Science and Engg.
- 2005 President of NAMRI/SME
- 2005 Chair – WTEC study on Micromanufacturing (NSF, ONR, DOE, NIST)

Awards:

- James N. and Nancy J. Farley Professor in Manufacturing and Entrepreneurship
- Fellow of ASME (American Society of Mechanical Engineers)
- Fellow of SME (Society of Manufacturing Engineers)
- 2008 SME Gold Medal
- 2009 ASME/MED Outstanding Service Award
- 2010 NAMRI/SME Kornel Ehmann Outstanding Lifetime Service Award
- 2012 ASME: Blackall Machine Tool and Gage Award
- 2012 ASME: Milton C. Shaw Manufacturing Research Medal