

October 2017

**CURRICULUM VITAE**

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**PERSONAL:**

Born: November 25, 1944. Stockholm, Sweden  
 Married, 3 children  
 Citizenship: USA and Canada

**EDUCATION:**

1976	University of Wisconsin-Madison,	Ph.D., Mechanical Engineering
1971	University of Wisconsin-Madison,	M.S., Mechanical Engineering
1967	McGill University, Montreal, Canada,	B.Eng., Mechanical Engineering

**POSITIONS HELD:**

2012-	University at Buffalo, Department of Mechanical and Aerospace Engineering; Professor Emeritus
1990-2012	University at Buffalo, Department of Mechanical and Aerospace Engineering; Professor
2007-08	University at Buffalo, Department of Mechanical and Aerospace Engineering; Interim Chair
2000-06	University at Buffalo, School of Engineering and Applied Sciences, New York State Center for Engineering Design and Industrial Innovation, Director of Industrial Relations
1995-2006	University at Buffalo, School of Engineering and Applied Sciences, Associate Dean for Research and Graduate Education
1995	CSIRO, Institute of Industrial Technologies, Division of Applied Physics, Sydney, Australia, Visiting Scientist (3 months)
1992-95	University at Buffalo, Department of Mechanical and Aerospace Engineering; Chair
1983-90	University at Buffalo, Department of Mechanical and Aerospace Engineering; Associate Professor
1986-87	Birmingham University (United Kingdom), Mechanical Engineering Department; Honorary Research Fellow

- 1977-83 University at Buffalo, Department of Mechanical and Aerospace Engineering, Assistant Professor
- 1974-77 University of Waterloo, Department of Mechanical Engineering, Research Associate, Research Assistant Professor
- 1972-74 University of Wisconsin-Madison, Engineering Extension Department; Lecturer
- 1970-74 University of Wisconsin-Madison, Department of Mechanical Engineering; Research Assistant and Teaching Assistant
- 1967-69 Compagnie Normande de Mecanique de Precision, Le Havre, France, Design and Manufacturing Engineer

### **PUBLICATIONS- refereed journal articles and book chapters**

58. Soom A. and Serpe C.I. Normal stiffness and damping at lightly loaded rough planar contacts Tribology Intl Aug 2016, V100 pp. 171-177 (also presented at the 42<sup>nd</sup> Leeds- Lyon Symposium on Tribology Sept 2015)
57. Dargush G.F. and Soom A. Contact modeling in boundary element analysis including the simulation of thermomechanical wear, Tribology Intl Aug 2016, V100 pp. 360-370 (also presented at the 42<sup>nd</sup> Leeds- Lyon Symposium on Tribology Sept 2015)
56. D. Chicot, F. Roudet, A. Soom and J. Lesage. "Interpretation of instrumented hardness measurements on stainless steel with different surface preparations." Surface Engineering, Jan 2007, V. 23 No. 1, 2007 pp. 32-39
55. J. Lesage, D. Chicot, A. Pertuz, P.-Y. Jouan, N. Horny, A. Soom " A model for hardness determination from standard microhardness tests" Surface Coatings and Technology, V 200 (No. 1-4), 2005, pp. 886-889.
54. C.-H. Wang, A. Soom and G. F. Dargush, "Transient Thermoelastic Contact of Sliding Rings with Axisymmetric Surface Roughness," Trans. ASME J. Trib., 126(2), 2004 (also presented at the STLE/ASME International Joint Tribology Conference, Ponte Vedra, FL, October 2003. ASME Paper No. 2003TRIB-202)
53. C.-H. Wang, G. F. Dargush, A. Soom and M. M. Grigoriev "Multiscale Thermomechanical Analysis of Sliding Rings from Short-Time Transients to Steady-State" Transient Processes in Tribology, 30<sup>th</sup> Leeds-Lyon Symposium, Lyon, Sept 2003. Elsevier Science B.V. (2004)
52. A.Soom, C. I. Serpe and G. F. Dargush, "High Frequency Noise Generation from Components in Sliding Contact: Flutter Instabilities Including the Effects of Surface Roughness and Friction" Transient Processes in Tribology, 30<sup>th</sup> Leeds-Lyon Symposium, Lyon, Sept 2003. Elsevier Science B.V. (2004)
51. A. Soom and A. Chopra, "In Search of Dynamic Effects in Dry Sliding Friction," (Invited), Tribology Research: From Model Experiment to Industrial Problem: A Century of efforts in mechanics, materials science and physical chemistry Leeds- Lyon 27 (2000), Elsevier Science B.V. (2001)
50. A. Soom, C. I. Serpe and G. F. Dargush, "Thermomechanics of Sliding Contact: When Micro Meets Macro," Proc. NATO-ASI: Fundamentals of Friction and Bridging the Gap between Macro and Micro/nanoscales, B. Bhushan, Ed., August, 2000, Kluwer Academic Publishers 2001.
49. G. F. Dargush, A. Soom and C. I. Serpe, "Thermomechanical Finite Element Analysis to Describe the Engagement and Wear of Electromagnetic Clutches" Tribology Research: From Model Experiment to Industrial Problem: A Century of efforts in mechanics, materials science and

physical chemistry Leeds- Lyon 27(2000), Elsevier Science B.V. (2001)

48. A.A. Polycarpou and A. Soom, "A Two-Component Mixed Friction Model for a Lubricated Line Contact," *Trans. ASME J. Trib.*, 118(1), 1996, pp. 183-189 (also presented at the STLE/ASME Joint Tribology Conference, Orlando, FL, October 1995).

47. A.A. Polycarpou, A. Soom, V. Swarnakar, R. Valtin, R.S. Acharya, V. Demjanenko, M. Soumekh, D.M. Benenson, and J.W. Porter, "Event Timing and Shape Analysis of Vibration Bursts from Power Circuit Breakers," *IEEE Trans. Power Del.*, 11(2), 1996.

46. A.A. Polycarpou and A. Soom, "Modeling of Unsteady Lubricated Friction," Ch. 6 in *Dynamics of Friction and Damping: Analysis, Modeling and Experiments*, A. Guran, F. Pfeiffer, and K. Popp, eds. World Scientific Publishers., 1996

45. A. Soom and D.E. Newland, eds., "Vibration of Nonlinear, Random, and Time-Varying Systems; Transient Signal Processing and Wavelets in Vibrations and Acoustics," *Proceedings of the 1995 Design Engineering Technical Conferences*, Vol. 3, Part A, ASME Book DE-Vol. 84-1.

44. J.A. Mooney and A. Soom, "Optimal Windows for the Time-Frequency Analysis of Arbitrary Swept Frequency Signals," *Proceedings of the ASME Biennial Vibration and Noise Conference*, Boston, MA, October 1995.

43. A. Soom, "Aspects of Contact Dynamics Relevant to Wear." *Effects of Mechanical Stiffness and Vibration on Wear*, ASTM STP 1247, 1995.

42. A.A. Polycarpou and A. Soom, "Application of Two-Dimensional Model of Continuous Sliding to Stick-Slip" *Wear* V181-183, 1995, pp. 32-41, (also presented at the Tenth International Conference on Wear of Materials, Boston, MA, April 1995).

41. A.A. Polycarpou and A. Soom, "Two Dimensional Models of Boundary and Mixed Friction at a Line Contact," *Trans. ASME, J. Trib.*, 117(1), 1995, pp. 178-184, (also presented at the ASME/STLE Joint Tribology Conf., Lahaina, HA, October, 1994.)

40. A.A. Polycarpou and A. Soom, "Boundary and Mixed Friction in the Presence of Dynamic Normal Loads, Part I: System Model," *Trans. ASME, J. Trib.*, 117(2), 1995, pp. 255-260, (also presented at the ASME/STLE Joint Tribology Conf., Lahaina, HA, October 1994.)

39. A.A. Polycarpou and A. Soom, "Boundary and Mixed Friction in the Presence of Dynamic Normal Loads, Part II: Friction Transients," *Trans. ASME, J. Trib.*, 117(2), 1995, pp. 261-266, (also presented at the ASME/STLE Joint Tribology Conf., Lahaina, HA, October 1994.)

38. A.A. Polycarpou and A. Soom, "Transitions Between Sticking and Slipping at Lubricated Line Contacts." *Trans. ASME, J. Vibrations and Acoustics*, 117(3A), 1995, pp. 294-299.

37. D.P. Hess and A. Soom, "Normal Vibrations and Friction at a Hertzian Contact under Random Excitation: A Perturbation Solution," *J. of Sound Vib.*, 164(2), 1993, pp. 317-326.

36. D.P. Hess and A. Soom, "The Effects of Angular Motions on Friction at Rough Planar Contacts," *Trans. ASME, J. Tribology*, 115(1), 1993, pp. 96-101. (Also presented at the ASME/STLE Joint Tribology Conference, San Diego, CA, October, 1992).

35. R.A. Ibrahim and A. Soom, (Eds), "Friction-Induced Vibration, Chatter, Squeal and Chaos," *Symposium at the ASME Winter Annual Meeting*, Anaheim, CA, November, 1992, DE-Vol. 49, Book No. G00735

34. D.P. Hess and A. Soom, "Unsteady Friction in the Presence of Vibrations," pp. 535-552 in *Fundamentals of Friction: Macroscopic and Microscopic Processes*, I. Singer and H. Pollock, Eds. Kluwer Academic Press, 1992.

33. D.P. Hess, S.Y. Park, M.K. Tangri, S.G. Vougioukas, A. Soom, V. Demjanenko, R.S. Acharya, D.M. Benenson and S.E. Wright, "Noninvasive Condition Assessment and Event Timing for Power

Circuit Breakers," IEEE Trans., Power Del., 7(1), 1992, pp. 353-360.

32. D.P. Hess and A. Soom, "Angular and Normal Motions at Planar Contacts During Sliding with Friction," Trans. ASME., J. Trib., 114(3), 1992, pp. 567-578. (Also presented at The STLE/ASME Tribology Conf., St. Louis, MO, October 1991).

31. V. Demjanenko, H. Naidu, A. Antur, M.K. Tangri, R.A. Valtin, D.P. Hess, S.Y. Park, M. Soumekh, A. Soom, D.M. Benenson and S.E. Wright, "A Noninvasive Diagnostic Instrument for Power Circuit Breakers," IEEE Trans on Power. Del., 7(2), 1992, pp. 656-663.

30. D.P. Hess, A. Soom and C.H. Kim, "Normal Vibrations and Friction at a Hertzian Contact Under Random Excitation: Theory and Experiments," J. Sound Vib., 153(3), 1992, pp. 491-508.

29. A.A. Polycarpou and A. Soom, "Transitions Between Sticking and Slipping at Lubricated Line Contacts," Symposium on Friction-Induced Vibration, Chatter, Squeal and Chaos, ASME WAM, DE Vol. 49, R.A. Ibrahim and A. Soom, eds., Anaheim, CA, November 1992, pp. 139-148.

28. J.N. DelVecchio and A. Soom, "Tolerances and Available Relative Motions at Bolted Connections," Proc. ASME Design Automation Conf., Miami, FL, September 1991.

27. C. Manoharan, H-P. Wang and A. Soom, "An Expert System for Design for Robotic Assembly." J. of Intell. Manuf., 2(1), 1990.

26. Z. Dong and A. Soom, "Automatic Optimal Tolerance Design for Related Dimension Chains," Mfg. Rev., 3(4), 1990, pp. 262-271.

25. M.L. Lai and A. Soom, "An Electromagnetic Wall Velocimeter for the Measurement of Thin Film Flows: Theory and Experiment," Meas. Sci. and Tech., 1, 1990, pp. 1136-42.

24. D.P. Hess and A. Soom, "Normal Vibrations and Friction Under Harmonic Loads: Part I - Hertzian Contacts," Trans. ASME, J. Trib., 113(1), 1991, pp. 80-86. (Also presented at the ASME/STLE Tribology Conf., Toronto, Ontario, October 1990).

23. D.P. Hess and A. Soom, "Normal Vibrations and Friction Under Harmonic Loads: Part II - Rough Planar Contacts," Trans. ASME, J. Trib., 113(1), 1991, pp. 87-92. (Also presented at the ASME/STLE Tribology Conf., Toronto, Ontario, October 1990).

22. M.L. Lai and A. Soom, "Statistical Energy Analysis for Time-integrated Transient Response of Vibrational Systems," Trans. ASME, J. Vib. Acoust., 112(2), 1990, pp. 206-213.

21. S.Y. Park, M.L. Lai, C.C. Lin, H. Naidu, A. Soom, A.M. Reinhorn, Y.H. Lee, V. Demjanenko, D.M. Benenson, T.T. Soong and S.E. Wright, "Measurements for Noninvasive Mechanical Diagnostics of Power Circuit Breakers," Electric Power Systems Research, 19(1), 1990, pp. 1-10.

20. D.P. Hess and A. Soom, "Friction at a Lubricated Line Contact Operating at Oscillating Sliding Velocities." Trans. ASME, J. Tribology, 112(1), 1990, pp. 147-152. (Also presented at the STLE/ASME Tribology Conference, Ft. Lauderdale, Fl, October 1989).

19. Z. Dong and A. Soom, "Automatic Tolerance Analysis Techniques," Chapter in Artificial Intelligence in Design," D.T. Pham, Ed., IFS/Springer-Verlag, Bedford, UK, December 1990.

18. M.L. Lai and A. Soom, "Prediction of Transient Vibration Envelopes Using Statistical Energy Analysis Techniques," Trans. ASME, J. Vib. Acoust., 112(1), 1990, pp. 127-137.

17. M.L. Lai and A. Soom, "The Measurement of Statistical Energy Analysis Parameters from Transient Tests," Vibration Analysis - Techniques and Applications Biennial ASME Conference on Mechanical Vibration and Noise, ASME Book H0508D, Montreal, Canada, September 1989, pp.1-6.

16. M.L. Lai, S.Y. Park, C.C. Lin, H. Naidu, A. Soom, A.M. Reinhorn, Y.H. Lee, T.T. Soong, V. Demjanenko, D.M. Benenson and S.E. Wright, "Mechanical Failure Detection of Circuit Breakers," IEEE Trans. Power Del, 3 (4), 1988, pp. 1724-31, (also presented at the IEEE Power Engineering

Society, Winter Annual Meeting, February 1988).

15. E.H. Gassenfeit and A. Soom, "Friction Coefficients Measured at Lubricated Planar Contacts During Start-Up," *Trans. ASME, J. Trib.*, 110(3), 1988, pp. 533-538. (Also presented at the ASLE/ASME Tribology Conference, San Antonio, TX, October 1987).

14. A. Soom and S.W. Lai, "Frequency Domain Power Transfer to Single Degree of Freedom Systems During Shock Loading," Vibration Control and Active Vibration Suppression ASME Design Eng. and Vibration Conf., ASME Book DE-V014, Boston, MA, September 1987, pp. 11-14.

13. Z. Dong and A. Soom, "Automatic Tolerance Analysis from a CAD Database", ASME Paper 86-DET-36, ASME Design Automation Conference, Columbus, OH, October 1986.

12. A. Soom (Ed.), "Proceedings of the 23rd Meeting of the Society of Engineering Science", Buffalo, NY, August 1986.

11. Z. Dong and A. Soom, "Computer-automated Interpretation of 2-D CAD Databases for Rotational Parts", Proc. Symposium on Integrated and Intelligent Manufacturing - Manufacturing Planning, ASME Winter Annual Meeting, Anaheim, CA, December 1986.

10. A. Soom and J. Chen, "Simulation of Random Contact Vibrations at a Hertzian Contact during Steady Sliding," *Trans. ASME, J. of Tribology Technology*, Vol. 108, 1986, pp. 123-127. (Also ASME Paper 85-Trib-41 presented at The ASLE/ASME Trib. Conference, Atlanta, GA, September 1985).

9. A. Anand and A. Soom, "Roughness-induced Transient Loading at a Sliding Contact During Start-up," *Trans. ASME., J. Trib.*, Vol. 106 91), 1984, pp. 49-53, (Also ASME Paper 83-Lub-27 presented at the ASLE/ASME Joint Lubrication Conference, Hartford, CT, October 1983).

8. A. Soom and C. Kim, "Roughness-induced Dynamic Loading at Dry and Boundary-Lubricated Sliding Contacts," *Trans. ASME, J. Lub. Tech.*, Vol. 105 (4), 1983, pp. 514-517. (Also ASME Paper 82-Lub-6 presented at The ASME/ASLE Joint Lubrication Conference, Washington, DC, October 1982).

7. A. Soom and C.H. Kim, "Interactions Between Dynamic Normal and Frictional Forces During Unlubricated Sliding," *Trans. ASME, J. Lub. Tech.*, Vol. 105(2), 1983, pp. 221-229. (Also ASME Paper 81-Lub-15 presented at The ASLE/ASME Joint Lubrication Conference, New Orleans, LA, September 1981).

6. A. Soom and M. Lee, "Optimal Design of Linear and Nonlinear Vibration Absorbers for Damped Systems." *Trans. ASME, J. Vib. Acoust. Stress. Rel. in Des.*, Vol. 105(1), 1983, pp. 112-119. (Also ASME Paper 81-DET-83, presented at The ASME Biennial Conference on Mechanical Vibrations).

5. A. Soom and C. Wang, "Interpretation of Rubbing Noise from a Pin-on-disc Configuration." ASME paper 83-WA-NCA-4, ASME Winter Annual Meeting, Boston, MA, November 1983.

4. A. Soom, G. Tougas and M. Merilo, "Application of an Electromagnetic Wall Velometer to Velocity Measurements in Thin Liquid Films," ASME Book G00209 Measurements in Polyphase Flows, 1982, pp. 61-64.

3. A. Soom, H.R. Martin and J.A. Lee, "Passive Acoustic Detection of Gas Leaks in Buried Pipes," *Trans. ASME, J. Eng. Ind.*, V.103(3), 1981, pp. 314-318. (Also ASME paper 80-WA-NC-17, presented at the ASME Winter Annual Meeting, Chicago, IL, December 1980).

2. A. Soom and R. Gu, "Average Excess Attenuation During Sound Propagation from an Isotropic Source Above Grassland," *J. Acoust. Soc. Am.* 70(4), October 1981, pp. 1129-1139.

1. A. Soom and C.H. Kim, "The Measurement of Dynamic Normal and Frictional Contact Forces During Sliding." ASME Paper 81-DET-40, ASME Design Engineering and Vib. Conf., Hartford,

CT, September 1981.

**PUBLICATIONS - Other articles and conference proceedings**

27. A. Soom, G. F. Dargush and N. C. Stenz , “Local Wear Models that Sometimes Work: Isothermal Sliding.” Paper IJTC2010-41303, Proceedings of the STLE/ASME 2010 International Joint Tribology Conference, Oct. 2010, San Francisco, CA
26. A. Soom, C-C. Chen, Y. Berthier “Contact Stiffness Due to Surface Roughness of a Composite Brake Material.” Proceedings of the 6th European Conference on Braking, JEF 2010, Lille, France, Nov 2010.
25. A. Soom, and C. I. Serpe “ Contact Stiffness of New and Worn Surfaces.” Proceedings of the World Tribology Congress, Washington, DC. Sept 2005. ASME paper WTC2005-63727.
24. A. Soom. G. F. Dargush, and C. I. Serpe “Understanding the Effects of Friction and Surface Roughness on the Noise Generation from Elastic Components in Sliding Contact” Proceedings of the Contact Mechanics Symposium at the STLE/ASME International Joint Tribology Conference, Ponte Vedra, FL, October 2003. ASME Paper No. 2003TRIB-261)
23. A. Soom “Lessons Learned from Twenty-Five years of Friction Modeling” (Keynote paper at the Contact Mechanics Symposium in the Proceedings of the STLE/ASME International Joint Tribology Conference, Ponte Vedra, FL, October 2003. ASME Paper No. 2003TRIB-256)
22. G.F. Dargush, C.I. Serpe and A. Soom, "Multidisciplinary Aspects of the Modeling of Sliding Contacts", Proceedings of the 3<sup>rd</sup> World Congress of Structural and Multidisciplinary Optimization Buffalo, NY, May 1999.
21. C.I. Serpe, G.F. Dargush and A. Soom, “Contact Stiffness and The Thermomechanical Response of Sliding Rings,” Proceedings International Symposium on Impact and Friction of Solids, Structures and machines, Ottawa, Canada, June 1998.
20. R.A. Valtin, A.A. Polycarpou, S. Ramaswamy, V. Swarnakar, A. Soom, V. Demjanenko, R.S. Acharya, D.M. Benenson, and J.W. Porter, "Circuit Breaker Diagnostics," EPRI Substation Equipment Diagnostics Conference, New Orleans, LA, November 1993.
19. S-Y. Park, D.P. Hess, S. Vougioukas, A. Soom, D.M. Benenson, V. Demjanenko, and S.E. Wright, "Timing Analysis of Vibration Bursts by Selective Average Filtering." Proc. Third Int'l. Mach. Monit. Diag. Conf., Las Vegas, NV, December 1991.
18. Z. Dong and A. Soom, "Methods of Automating Tolerance Analysis and Synthesis in CAD Environments." Proc. of 3rd Int'l. Symp. Robotics and Mfg. (ISRAM), Burnaby, BC, Canada, July 1990.
17. D.M. Benenson, A. Soom, S-Y. Park and S.E. Wright, "Machine Diagnostics Using the Concepts of Resolution Ratio and Automated Timing." Proc. of 2nd Int'l. Conf. Cond.Monitoring and Diag. Eng. Mgt., (COMADEM 90), Uxbridge, UK, July 1990.
16. S-Y. Park, A. Soom, D. Hess, M. Tangri, V. Demjanenko, R. Acharya, D.M. Benenson and S.E. Wright, "Time-Frequency Distribution of Power Circuit Breaker Vibrations During Switching Operations," Proc. 2nd Int'l. Machine Monitoring Diag. Conf., Los Angeles, CA, October 1990.
15. Z. Dong and A. Soom, "Optimal Tolerance Design Incorporating Manufacturing Cost Data." Proc. the Soc. for Integ. Manuf. Conference, Atlanta, GA, November 1989, pp. 409-414.
14. S.Y. Park, M.L. Lai, H. Naidu, Y.H. Lee, V. Demjanenko, A. Soom, D.M. Benenson and S.E. Wright, "Event Timing Extraction Results from External Vibration Measurements on Oil Circuit Breakers," Proceedings of the Conference, Beyond Computer Relaying, Blacksburg, VA, June

1989.

13. D.J. Inman and A. Soom, "Vibration Control in Spacecraft," Proceedings of The Conference: Modern Practice in Vibration and Stress Analysis, Liverpool, U.K., Pergamon Press, 1989, pp. 11-16.
12. C.C. Lin, T.T. Soong, A.M. Reinhorn, M.L. Lai, S.Y. Park, H. Naidu, A. Soom, Y.H. Lee, V. Demjanenko, D. Benenson, and S.E. Wright, "Machine Diagnostics by Inverse Filtering Techniques," 1st Int'l. Mach. Monitoring and Diag. Conference, Las Vegas, NV, September 1989, pp. 155-160.
11. S.E. Wright, D.M. Benenson and A. Soom, "Circuit Breaker Diagnostics," Proceedings of the Doble Conference, Boston, MA, April 1989.
10. S.Y. Park, M.L. Lai, C.C. Lin, H. Naidu, A. Soom, A.M. Reinhorn, Y.H. Lee, V. Demjanenko, D.M. Benenson, T.T. Soong and S.E. Wright, "Measurements for Noninvasive Mechanical Diagnostics of Power Circuit Breakers," Proceedings of the Conference for Electric Power Research and Implementation, New Orleans, LA, November 1988.
9. S. Pequignot and A. Soom, "Automatic Generation of Production Drawings and Part Routings for Families of Valve Spools," Proc. Third Intl. Conf. CAD/CAM, Robotics, and Factories of the Future, Southfield, MI, August 1988.
8. A. Soom and B.J. Wang, "Frequency Domain Power Transfer During the Impact Testing of Structures." Proceedings of the Fifth International Modal Anal. Conf., London, UK, April 1987, pp. 772-778.
7. A. Soom, B.J. Wang and T. Trachsler, "Energy Transfer During Impact Testing." Proc. Fourth Intl. Modal Analy. Conf., Los Angeles, CA, February 1986, pp. 1424-1431.
6. A. Soom and J. Kubler, "Dynamic Force Measurement," Proc. Soc. Exptl. Mech., Orlando, FL, November 1985, pp. 45-49.
5. A. Soom, "Sounds of Rubbing Reveal Dynamic Frictional Phenomena," Eng. Prog. of Western NY, November 1981, pp. 19-20.
4. A. Soom and J.G. Bollinger, "Emission and Propagation of Snowmobile Noise," Proc. of the Third Interagency Symposium on University Research in Transportation Noise, Salt Lake City, UT, November 1975, pp. 39-48.
3. J.G. Bollinger and A. Soom, "Portable Tape-monitoring System for Field Recording of Snowmobile Noise," Proc. of the National Noise and Vibration Control Conf., October 1973, pp. 80-82.
2. A. Soom and J.G. Bollinger, "Sound Propagation Over Various Outdoor Terrains," Proc. of the National Noise and Vibration Control Conf., Chicago, IL, October 1973, pp. 44-47.
1. A. Soom, J.G. Bollinger and O.J. Rongstad, "Studying the Effects of Snowmobiling on Wildlife," Proc. of the INTER-NOISE '72 Conf., Washington, DC, November 1972.

#### **PUBLICATIONS - Reports and Theses:**

5. R.S. Acharya, D.M. Benenson, V. Demjanenko, A.A. Polycarpou, A. Soom, V. Swarnakar, and R.A. Valtin, "Power Circuit Breaker Diagnostics," Final Report EPRI EL, (164 pp).
4. M.L. Lai and A. Soom, "Nonintrusive Measurements of Liquid Film Velocity and Flow Rate," Electric Power Research Institute Report, EPRI NP-5407, October 1987, (80 pp).
3. "A Study of Flow Noise Generated by Towed Submersibles and Hull-attached Domes." (with H.R. Martin, Principal Investigator). Final report to National Research Council of Canada, PRAI Grant P7320, November 1976.

2. "Emission, Propagation and Environmental Impact of Noise from Snowmobiling Operations," Ph.D. Thesis, Univ. of Wisconsin-Madison, May 1976.
1. "A Self-Optimizing Vibration Absorber for Multi-degree of Freedom Systems," M.S. Thesis, Univ. of Wisconsin-Madison, May 1971.

### **CONFERENCE PRESENTATIONS** (Not included above)

1. "Community Noise Impact due to Snowmobiling Operations," Annual Meeting of the Canadian Acoustical Association, Vancouver, BC, October 1976.
2. "Directivity of Polyhedral Loudspeaker Arrays," 97th Meeting of the Acoustical Society of America, Cambridge, MA, June 1979.
3. "A Layered Ground Model for Excess Attenuation Calculations," 101st meeting of the Acoustical Society of America, Ottawa, Ontario, May 1981.
4. "Long Range Sound Propagation-Measurement and Prediction," invited presentation at The Symposium on Long Range Sound Propagation-Status and Future Directions, Diamondhead, MS, November 1981.
5. "Modeling of Roughness-induced Contact Vibrations and Force Oscillations during Sliding," Ninth U.S. National Congress of Applied Mechanics, Ithaca, NY, June 1982.
6. "Roughness-induced Dynamic Loading during Start-up and Sliding," Sixth NASA/NAVY Workshop on Liquid-Lubricated Seals, Raleigh, NC, October 1983.
7. "Sensing and Diagnostics in Manufacturing," High Technology Trends and Applications, Faculty of Engineering and Applied Sciences Lecture Series, Buffalo, NY, December 1983.
8. "Research and Education in Flexible Manufacturing," American Institute of Industrial Engineers Conference: Improving Productivity through Manufacturing Flexibility, Buffalo, NY, May 1985.
9. "Sliding Contact Vibrations Due to Surface Irregularities: Start-up and Steady Sliding Results," Invited Paper at the Annual Meeting of the Society of Engineering Science, September 1985.
10. "Friction Relations Under Unsteady Loading & Sliding Conditions," Gordon Research Conference on Tribology, Plymouth, NH, June 1988.
11. "Modeling Transient Vibration Envelopes Using Statistical Energy Analysis Techniques." 117th Meeting Acoust. Soc. Am., Syracuse, NY, May 1989.
12. "The Application of Statistical Energy Analysis to Transient Vibrations," Conference on Modern Practice in Stress and Vibration Analysis, Liverpool, U.K., April 1989.
13. "High Frequency Contact Dynamics and Average Friction," Gordon Research Conference on Tribology, Plymouth, NH, June 1990.
14. "Stick-Slip and Slip-Stick Transitions," Gordon Research Conference on Tribology, Plymouth, NH, June 1992.
15. "Normal Motions and Friction: Models and Experiments," Gordon Research Conference on Tribology, Plymouth, NH, July 1994 (with A.A. Polycarpou).
16. "Time-Frequency Analysis of Swept Frequency Signals," Institution of Engineers of Australia, Vibration and Noise Symposium, Newcastle NSW, October 1995.
17. "New Trends in Tribology," UNED, Avila, Spain, July 1997.
18. "Effects of System Dynamics on Friction... and Vice-versa." Keynote address at The International Symposium on Impact and Friction of Solids, Structures and Machines, Ottawa, Canada, June 1998.
19. "Contact Stiffness and The Thermomechanical Response of Sliding Rings" Gordon Research



Conference on Tribology, July 1998. (with C.I. Serpe and G.F. Dargush).

20. "Multidisciplinary Aspects of The Modeling of Sliding Contacts", Proceedings of the 3<sup>rd</sup> World Congress of Structural and Multidisciplinary Optimization, Buffalo, NY, May 1999.

21. "Contact Stiffness of New and Worn Surfaces', STLE/ASME Tribology Conference, Orlando, FL, October 1999.

22. "The Usefulness and Pitfalls of Computational Mechanics in the Design of Sliding Contacts," JIFI 2000 Conference, Caracas, Venezuela, November 2000 (with C.I. Serpe and G.F. Dargush).

23. "Transient Thermomechanical Contact of Rough Surfaces in Sliding Contact: Some Surprising Links between Micro-Roughness and Component Level Deformations" (with G.F. Dargush, M. Grigoriev, C.H. Wang and N. Kania) Gordon Research Conference on Tribology, Bristol, RI, August 2002

24. "Global and nearly local characteristics of rough surface contact." 32<sup>nd</sup> Leeds-Lyon Symposium on Tribology, Lyon, France September 6-9, 2005. (with G.F. Dargush, and C. I. Serpe)

25. "Thermomechanical wear simulation at a dry sliding contact." 32<sup>nd</sup> Leeds-Lyon Symposium on Tribology, Lyon, France September 6-9, 2005. (with G.F. Dargush, and N. Kania)

26. "Patterns of wear at planar ring contacts developed under thermomechanical sliding." European Braking Conference Nov 8-9, 2006. Lille, France. (with N. Kania, G. Dargush and J. Lesage).

27. "Local modeling of the worn shapes of nominally planar contacts when both surfaces wear (with and without frictional heating)" 36th Leeds-Lyon Symposium on Tribology, Lyon, France September 1-3, 2009. (with G.F. Dargush, and N. Stenz) (Invited)

28. A. Soom and H. Patankar Modeling Vibrations Due to Surface Roughness at Planar Sliding Contacts 40th Leeds-Lyon Symposium on Tribology, Lyon, France September 2013

### **PATENTS:**

"Method and Apparatus for Diagnosing the State of a Machine." V. Demjanenko, A. Soom, Y.H. Lee, A. Reinhorn, T.T. Soong, D.M. Benenson and S.E. Wright. U.S. Patent No. 4, 980, 844, December, 1990.

"Method and Apparatus for Diagnosing the State of a Machine," Continuation in Part, U.S. Patent No. 5, 251, 151, October, 1993.

### **RESEARCH INTERESTS:**

Tribology, Machinery Diagnostics, Mechanical Design, Acoustics and Noise Control, Dynamic Testing and Modeling

### **RESEARCH GRANTS:**

1. Principal Investigator, "Research Initiation: Sound Propagation from an Isotropic Source Close to the Ground," \$24,600, April 1978 to March 1981. Sponsor: NSF (National Science Foundation).

2. Principal Investigator, "Electromagnetic Wall Velocimeter." \$30,289 April 1982 to December 1984. Sponsor: EPRI (Electric Power Research Institute).

3. Co-principal Investigator (S. Rudin, Dept. of Radiology, UB, principal investigator),

Radiographic Contrast Improvement Using Rotating Aperture Wheels," NIH(National Institutes of Health). \$285,000, July 1982 to June 1985. Sponsor: NIH.

4. Principal Investigator, "Spring Wear in Plate Valves." \$5,000, July 1983 to December 1983. Sponsor: Worthington Compressors Inc.

5. Co-principal Investigator (with D.J. Inman), "Orifice Noise Diagnosis and Reduction." \$25,000, September 1984 to August 1985. Sponsor: Harrison Radiator Corp. (Div. of General Motors).

6. Principal Investigator, "TRW Post-doctoral Fellowship in Manufacturing Engineering." \$23,000, August 1986 to June 1987. Sponsor: SME, TRW Foundation.

7. Principal Investigator, "Manufacturing Systems Engineering." \$10,000, November 1985 to June 1987. Sponsor: Moog Inc.

8. Principal Investigator, "Concepts of Fixture Design and Manufacturability Assessment." \$7,950, November 1986 to October 1987. Sponsor: NSF.

9. Principal Investigator, "Friction Relations under Unsteady Loading and Sliding Conditions." \$155,938, September 1985 to August 1988. Sponsor: NSF.

10. Principal Investigator, "Mechanical 1G Reference for a Gravimeter," \$23,000, April 1988 to January 1989. Sponsor: Bell-Aerospace Textron

11. Co-principal Investigator (D. Benenson Principal, T.T. Soong, V. Demjanenko and Y.H. Lee, co-principals), "Power Circuit Breaker Diagnostics," \$258,000, November 1985 - March 1988. Sponsor: EPRI/NYSERDA.

12. Co-principal Investigator (D. Benenson, Principal, A. Reinhorn, V. Demjanenko, R. Acharya, co-principals), "Power Circuit Breaker Diagnostics," \$429,000, April 1988 - August 1990. Sponsor: EPRI/NYSERDA.

13. Co-principal Investigator (D. Benenson, Principal, V. Demjanenko, M. Soumekh, co-principals), "Power Circuit Breaker Diagnostics," \$518,000, September 1990-March 1993. Sponsor: EPRI.

14. Principal Investigator, "The Oblique Contact of Nominally Flat Surfaces During Sliding with Friction," \$30,041, February 1991-January 1992, Sponsor: NSF.

15. Co-principal Investigator (D. Benenson, Principal, V. Demjanenko, R. Acharya, co-principals), "Power Circuit Breaker Diagnostics," March 1993-October 1994, \$350,580, Sponsor: EPRI.

16. Co-principal Investigator, (C.L. Bloebaum, co-principal), "Multidisciplinary Design and Analysis Fellowship Program," November 1993-August 1994, \$50,000, Sponsor: NASA.

17. Principal Investigator, (G. F. Dargush, co-principal) "Clutch Friction and Deformation," Sponsor: Delphi Harrison Thermal Systems, June 1995-March 1999, \$304,338. (Co-PI, G. Dargush)

18. Principal Investigator, (R.C. Wetherhold, co-principal) "Impact Testing," \$26,041, April 1997-October 1998. Sponsor: Gore Industries.

20. Principal Investigator, "Conical Bearing Wear Threshold Detection," \$20,036, March 1998-May 1999. Sponsor: Buffalo Pumps Inc.

21. Principal Investigator, (G.F. Dargush, co-principal) "Compressor Start-Up Simulation and Clutch Wear," \$29,200, June 1999 - Oct 2000. Sponsor: Delphi Harrison Thermal Systems.

22. Principal Investigator, (G. F. Dargush, co-principal) "Thermomechanical Modeling of Engineering Surfaces in Sliding Contact," \$149,879, September 2000-February 2003. Sponsor: NSF

23. Co-Principal Investigator, (C. L. Bloebaum, Principal, M. Karwan, E. Winer, Kesavadas, Co-Principals). "NYSCEDII: New York State Center for Engineering Design and Industrial Innovation." June 2000-December 2002. \$2,500,000 Sponsor: New York State Assembly and

NYSTAR.

24. Co-Principal Investigator, (C. L. Bloebaum, Principal, M. Karwan, E. Winer, Co-Principals).“NYSCEDII: New York State Center for Engineering Design and Industrial Innovation.” Jan 2002-December 2004. \$1,464,000 Sponsor: New York State Assembly and NYSTAR.

25. Principal Investigator, (G. F. Dargush, co-principal) “US-France Cooperative Research: Tribological Thin Films on Rough Surfaces: Design, Analysis, Characterization, Fatigue and Wear.” \$19,700, April 2003-March 2006. Sponsor: NSF

26. Principal Investigator, (G. F. Dargush, T. K. Singh and C. L. Bloebaum, co-principals) “WARP Motor Modeling and Design” \$250,000, Nov 2007-Dec 2010. Sponsor: Sprung-brett RDI.

### **UNIVERSITY SERVICE:**

#### **Department of Mechanical and Aerospace Engineering**

Undergraduate Studies Committee, 1977-79

Faculty Recruitment Committee 1978-81, 1983-84, 1985-86, 1987-88, 1991-96

Graduate Studies Committee 1979-91

Director of Graduate Studies 1987-91

Department Chair, Mechanical and Aerospace Engineering, 1992-95

Interim Department Chair, Mechanical and Aerospace Engineering, 2007-08

Associate Chair, Mechanical and Aerospace Engineering, 2008-11

#### **School of Engineering and Applied Sciences (SEAS)**

SEAS Computer-aided Design Laboratory, Co-director, 1984-86

SEAS Academic Programs Committee (Graduate), 1987-91, 1995-2006

SEAS Academic Programs (Divisional) Committee, Chair, 1989-91, 1995-2006

Manufacturing Systems Engineering Program, Chair, 1983-91

Faculty Personnel Committee (SEAS) 1984-86, 1989-92

Search Committee, SEAS Development Officer, 1993-94

Search Committee, SEAS Associate Dean/Budget Officer, 1995

Associate Dean for Research and Graduate Education (SEAS) 1995-2006

SEAS Computing Committee, 1998–2000

Sterbutzel Research Fund Committee, Chair 2004-2006

#### **University at Buffalo**

Interim Council for International Programs 1983-84

Graduate School Executive Committee, 1987-90, 1996-2006

Faculty Senate, 1991-1993, 2006-2010

Faculty Senate Executive Committee, 1992-93

Computer Sciences and Allied Disciplines Task Force, 1996-97

Search Committee for Director of Technology Transfer Services, Chair 1998-1999

Revenue Generating Guidelines and Policies Committee, 1998

General University Service Fee Committee, 1998 -2000  
 Selection Committee for Graduate Student Excellence in Teaching Awards, 1999-2003  
 Technology Transfer and Licensing (TTL), Technology Advisory Panel (TAP), 2000-2002  
 Associate Deans for Research Group 2001-2006  
 Task Group on Research Incentives and Support 2005

### **PROFESSIONAL ACTIVITIES:**

- Fellow, ASME
- Associate Editor, ASME J. of Tribology, 1995-98
- ASME Tribology Division Executive Committee, 1998-2001
- Chair, Publications Committee, ASME Tribology Division, 1998-2001
- Reviewer: Journal of Dynamic Systems, Measurement and Control, JASA, Journal of Sound and Vibration, J. Vib. Acoust., Trans. STLE, ASME J. of Tribology, NSF, Engineering Foundation, Wear, Tribology Intl., Tribology Letters, STLE Trans.
- Program Chairman, 23rd Meeting of the Soc. of Engrg. Science, Buffalo, NY, August 1986
- NSF review panels for: Research Initiation and Equipment Proposals in Mechanical Systems; International Programs; Tribology and Surface Engineering (twice); Research Initiation and Equipment Proposals in Engineering Design; SBIR Grants
- Chairman, Materials-Continuum Viewpoint, ASME-NSF Workshop on Research Needs in Friction, Gaithersburg, MD, June 1992
- Invited Speaker, NSF-ASME Workshop on Research Needs in Friction-Vibration Interaction, Pittsburgh, PA, August 1994.

### **CONTINUING EDUCATION (Total external funding for this activity $\approx$ \$700,000):**

- Organized and Taught (with J. Bollinger and A. Pavlovic) four one-week short courses in Noise Measurement and Control in the Engineering Extension Department of the University of Wisconsin (1972-74).
- Taught "Instrumentation and Control Technology," (for Power Plant Engineers) for N.Y. State Department of Civil Service (with W.K. George and T. Weber), Spring 1978, Spring 1980.
- Taught "Dynamic Flow Measurement," a short course offered through the SUNYAB Turbulence Research Laboratory and DISA. (W.K. George, course director) June 1982, June 1983, Aug. 1984, June 1986.
- Organized and taught (with D.J. Inman and Kistler Instruments Inc.) short course "Vibration and Shock; Testing and Modal Analysis," August 1984, August 1985.
- Taught "Machine Design" in Professional Engineering, Exam (Part II) Review Course, Fall 1984, Fall 1985.
- Organized (with J. Thoma) "Simbond-USA," Short courses on the Modeling of Dynamic Systems using Bondgraphs, Buffalo, NY, August 1987, August 1988.
- Organized and taught (with D.J. Inman) Short Courses "Noise and Vibration Control," at Harrison Radiator Division of General Motors, November 1988, December 1988.
- SEAS/Bell Aerospace Textron, on-site graduate program, Coordinator, 1988-90.
- SEAS/Niagara Mohawk Power Corporation, On-site graduate program coordinator, M. Eng. Program in Energy Consulting, January 1994 to 1996.

- SEAS/Motorola, On-site graduate program coordinator, August 1997 to 2000.
- SEAS/Delphi-Harrison Thermal Systems, On-site graduate program, coordinator, June 1988 to 2001.
- SEAS/Praxair Inc., On-site graduate program, coordinator, September 1992 to 2002.
- Taught two-day short course “Surface Failure and the Design of Mechanical Contacts” at the Central University of Venezuela, December 2000. “Tribology: General Concepts” Keynote address at the A3TS workshop on surface modification and associated mechanical properties. Villeneuve d’Ascq, France, March 2006.

### **COURSES TAUGHT:**

Mechanical Vibrations - Graduate/Undergraduate  
 Machines and Mechanisms I (Machine Element Design) - Undergraduate  
 Machines and Mechanisms II (Kinematics and Dynamics of Machines) - Undergraduate  
 Noise Control Engineering - Graduate/Undergraduate\*  
 Systems Analysis - Undergraduate\*  
 Tribology - Graduate/Undergraduate  
 Automation in Manufacturing - Graduate\*  
 Manufacturing Information Systems - Graduate Seminar\*  
 Instrumentation (with S. Capp, J. Tan-atichat, W.K. George and R. Mates) – Graduate  
 Senior/Capstone Design Projects - Undergraduate  
 \*Courses Developed

### **STUDENT ACTIVITIES:**

- Advisor to student chapter of the National Society of Professional Engineers 1978-1986
- Advisor to UB Entry to the Mini-Baja East and Mid-West vehicle design and endurance race competition, 1979-1986, 1987-1990. (*Won Mid-West competition 1988*)
- Advisor to UB Student Chapter of the Society of Automotive Engineers (1996-2007)
- Advisor to UB Entry to the Clean Snowmobile Challenge 2000-2005. (*Won competition March 2000 and 2005*)

### **GRADUATE STUDENT SUPERVISION:**

#### **University of Waterloo (M. Sc Projects)**

J. Lea (1976), D. Edgar (1977), J. Flowerdew (1977) .

#### **University at Buffalo (M. S. Project, M. S. Comprehensive or M. Eng. Project)**

R. Henneson, (2/82), S. Yu (6/83), S. Agarwal (2/85), F. Parham (6/85), I. Menahem (6/85), R. Sadlon (9/86), M. Traum (9/86), R. Mathur (2/87), S. Lai (6/87), D. Pautler (6/88), H. Yoon (9/88), W. Shea (2/89), F. Cobankiat (2/89), D. Massing (6/89), A. Fleming (6/89), D. Gutberlet (6/90), D. Remington (9/90), E. Kootte (9/93), W. Wright (2/94), D. Cummisky (2/94), R. Meinhold (2/94), G. Mathew (6/95), G. Rondean (6/96), G. Victor (6/96), X. Wang (9/96), G.

Bradbury (2/97), S. Lavery (2/97), S. Sattan (2/97), L. Lin (9/97), G. Boehly (2/98), K. Borowski (6/98), Y. Spektor (6/98), R. Roncone (9/98), T. Kilburn (2/99), D. Radomski (2/99), B. Wetzel (2/99), M. Manning (6/99), T. Filonczuk (6/99), J. Lackie (6/99), E. Todd (9/99), P. Weber (9/99), T. Curry (1/00), M. K. Rogan (2/01), S. W. Foster (2/01), G. F. Seibold (2/01), J. Scarcella (6/01), J. Pawlak III (6/01), J. Lambert (9/01), J. Kehoe (2/02), U. Ahmed (2/02), J. Kajdas (2/02), S. Fry (6/02), A. Sarantopoulos (9/02), D. Johnston (9/02), A. Rosinki (9/02), S. Schmidt (9/02), K. Helenbrook (2/04), Y. Bhide (2/04), B. Shah (2/04), H. Rangwalla (2/05P), C. Lee (2/06P), J. Schieffle (2/07C), D. Sekuterski (6/07P), C. Chen (9/07) L-P Chang (6/08), C. Teng (5/09), T. Hung (9/08), J. Bray (2/09), P. Desai (6/09), J. Duffney (2/10), D. Yan (6/10), O. Tendolkar (6/10)

### **University at Buffalo (M. S. Theses)**

J. Koo (February 1979) "Numerical Modeling and Measurement of the Directivity of Polyhedral Loudspeaker Arrays"

M. Lee (September 1979) "Broad-Band Optimal Design of Linear and Nonlinear Vibration Absorbers"

A. Gau (February 1980) "Holographic Visualization of Nodal Patterns of Vibrating Membranes"

R. Gu (September 1980) "Measurements of Medium Range Sound Propagation from an Isotropic Source above Grassland"

B. Honda (February 1981) "Measurement and Modeling of Sound Propagation over Ground during Summer and Winter"

S. Eranki (February 1981) "Four-axis Micro-computer-controlled Universal Positioning System for Automated Flow Measurements" (co-advised with W. K. George)

B. Howe (February 1982) "A Microprocessor-controlled Traversing System for Three-dimensional Flow Measurements"

A. Anand (September 1983) "Roughness-induced Transient Loading at a Sliding Contact during Start-up"

K. Rangarajan (June 1983) "Interfacing a Dual-channel Signal Processor with Minicomputer for Remote Control and Data Acquisition"

C. Wang (June 1983) "Rubbing Noise Radiated from a Pin-on-disc Configuration"

M. Lai (February 1984) "Theory and Application of Electromagnetic Wall Velocimeters to the Measurement of Thin Film Flows"

J. Chen (June 1984) "Digital Simulation of Surface Roughness-induced Normal Contact Vibrations During Sliding"

T. Tsai (June 1984) "The Planar Dynamics of a Slider Moving Over a Wavy Surface"

D. Stryker (June 1984) "End Wear of Helical Compression Springs Under Cyclic Loading"

Z. Dong (June 1985) "Automatic Scanning of Design Databases for Manufacturability Assessment"

J. Tylock (September 1985) "Mechanisms of Noise Generation during Expansion of a Refrigerant Through an Orifice Tube" (co- advised with D.J. Inman)

B. Wang (February 1986) "Energy Transfer During Impact Testing of Structures"

E. Gassenfeit (September 1986) "Measurement of Start-up Friction at a Planar Contact"

K. Arumugam (February 1987) "Integration of Design and Numerical Control Programming"

S. Pequignot (June 1988) "Automatic Generation of Engineering Drawings and Process Routings for Valve Spools in a CAD Environment".

- P. Beiter (June 1988) "Software for Instructional Robot Calibration, Control, and Programming."
- D. Hess (September 1988) "Steady and Unsteady Friction Behavior at Dry and Lubricated Contacts."
- M. Soman (January 1990) "Optimal Clamping for Design of Fixtures for Machining"
- J. Delvecchio (June 1990) "Geometric Tolerances and Mobility Formulations for Bolted Connections"
- Y. Wang (September 1990) "A System for Structural Intensity Calibration"
- S. Pleban (September 1992) "Transient Wave Propagation in Simple and Complex Structures Under Impact"
- A. Polycarpou (September 1992) "Transitions Between Sticking and Slipping at Lubrication Line Contacts"
- A. Chopra (September 1993) "Contact Vibration and Instantaneous Friction at Planar Contacts"
- C. Rao (February 1994) "Development of an Objective Rating System for Electric Motor Whine"
- I. Paraskavopoulos (January 1995), "Time-Frequency Analysis of Transient Vibration Signals Using Conventional Filters"
- B. Mathew (September 1999) "Speed-Dependent Wear Models and Wear Coefficients of Mild Steel Rings"
- J. Pasquini (September 2000) "Simulation of an Automotive Air Conditioning Clutch and Compressor System"
- R. Sandner (June 2002) "Evaporator Core Sealing Techniques."
- N. M. Kania (Sept 2004) "Shapes of Wear Tracks on Sliding Concentric Rings."
- J. Lambert (June 2007) "Enhancement of the Low Frequency Sound Absorption of Porous Materials by Addition of a Thin High Flow-resistivity Cover Layer"
- J. Smith (June 2007) "Measured Friction between Hardened Steel Surfaces in Nominal Elastic and Plastic Contact"
- N. Stenz (September 2008) "Finite Element Simulation of Wear Tracks"
- Q. Wang (June 2008) "Surface Roughness and Contact Stiffness"
- H. Ng (January 2009) "Thermomechanics of Point Contacts with Frictional Heating"
- H. Nagesh (June 2011) "Effect of Surface Conformity and Roughness on Wear – A Finite Element Study"
- H. Patankar (Sept 2012) "Modeling Planar Contact Vibrations Excited by Surface Roughness"

### **University at Buffalo (Ph. D. Dissertations)**

- C. Kim (September 1981) "An Experimental Study of Dynamic Friction Processes at Concentrated Metallic Contacts" (Professor (Emeritus), Kyungbook National University, Korea)
- M. Lai (September 1988) "Modeling of Transient Vibrations Using Statistical Energy Analysis Techniques" (Research Manager, 3M Corporation)
- Z. Dong (September 1989) "Automatic Tolerance Analysis and Synthesis in CAD Environments" (Professor (since 1999)) and Chairman, Department of Mechanical Engineering, University of Victoria, British Columbia)
- D. P. Hess\* (February 1991) "Nonlinear Contact Vibrations and Dry Friction at Concentrated and Extended Contacts" (Professor (since 1999), University of South Florida)
- A. A. Polycarpou\*\* (June 1994) "Two Dimensional Dynamic Friction Modeling of Boundary and Mixed Lubricated Line Contacts" (Department Head and Meinhard H. Kotzebue '14 Professor,

Mechanical Engineering Department, Texas A & M University)

M. Thurston (June 1998) "A Complete Structural Vibration Source Model for a Class of Rotating Machines with Internal Force Generating Mechanisms." (Research Group Leader, Rochester Institute of Technology)

C. I. Serpe (Sept. 1999) "The Role of Contact Compliance in the Deformation, Wear and Elastic Stability of Metallic Sliding Rings: Experiments and Computational Analysis" (Research Scientist, Seagate Technology Inc).

*\*Received NSF CAREER and PECASE Awards*

*\*\*Received NSF CAREER Award*