

Associate Professor Alex A. Volinsky, Ph.D.

The University of South Florida, Department of Mechanical Engineering

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Education	University of Minnesota , <i>Ph.D.</i> in Materials Science and Engineering Thesis title: “ <i>The Role of Geometry and Plasticity in Thin, Ductile Film Adhesion</i> ” Academic advisor: Professor W.W. Gerberich	Minneapolis, MN 1996 – 2000
	Moscow State University of Aviation Technology <i>Engineering Degree</i> in Metallurgical Engineering and Materials Science Thesis title: “ <i>Mathematical Model and Process Development for Producing Metal Matrix Composite Tubes by Thermocompression</i> ”	Moscow, Russia 1990 – 1996
Experience	University of South Florida, Department of Mechanical Engineering <i>Associate Professor</i> <i>Assistant Professor</i> Research interests: Thin films processing, mechanical properties and characterization. Adhesion and fracture of thin films. Microelectronics and MEMS reliability. Irradiated materials properties and X-Ray diffraction. Shape memory alloys. Courses taught: Materials Selection in Mechanical Design, Advanced Materials, Mechanics of Materials, Introduction to Materials Science, Applied Elasticity, Fracture Mechanics.	Tampa, FL 2009 – present 2003 – 2009
	The National Research Tomsk State University <i>Leading Scientist</i> Managed and supervised “Interface Rheology Between Superelastic Alloy and Biological Tissue” Mega grant project	Tomsk, Russia 2021 – 2023
	Laboratori Nazionali di Frascati, Istituto Nazionale di Fisika Nucleare <i>Visiting Researcher</i> Managed US students’ research measuring secondary electrons yield	Frascati, Italy 2011 – 2013
	University of Science and Technology Beijing <i>Visiting Professor</i> Managed joint projects, taught Advanced Materials in 2010, and supervised students	Beijing, China 2010 – 2018
	European X-ray Free Electron Laser, XFEL (WWW.XFEL.EU) <i>Visiting Researcher</i> Led groups of US students to design X-Ray laser optics elements	Hamburg, Germany 2010 – 2012
	Technical University Dresden, Institute of Structural Physics <i>Visiting Professor</i> Lead a group of US students to study X-Ray optics elements thermomechanical behavior and oil micro-evaporation	Dresden, Germany 2008
	Jagiellonian University, Faculty of Physics, Astronomy and Computer Science <i>Visiting Professor, Marie Curie Host Fellow</i> Lead a group of US students to study surface effects using AFM	Krakow, Poland 2005 – 2007
	Motorola: Digital DNA Labs, Process and Materials Characterization Lab <i>Engineering Materials Senior Staff Member</i> , Platforms and Strategic Research Group Conducted principal research employing XRD, SEM, FIB, and FA analytical techniques for advanced technologies development	Tempe, AZ 2002 – 2003
	<i>Team Leader, Senior Member of Technical Staff</i> Combinational & Power Technology, HiPerMOS & Bipolar Analysis Groups Managed and conducted analytical support for production and R&D with SEM, FIB, XRD, and FA (Hip6, 7; CDR1, 3; SmartMOS; MRAM Motorola technologies)	Mesa, AZ 2000 – 2002
	Motorola: Advance Product Research and Development Labs/MOS13 Fab <i>Senior Yield Enhancement Engineer</i> Excite dark-field defect metrology tool owner (Applied Materials). Solved problems with new HIP6/HIP7 copper technology in production, improved yield, and product quality. Work conducted saved Motorola 3.6 million dollars.	Austin, TX 2001

Motorola: Digital DNA Labs, Semiconductor Product Sector Phoenix, AZ
Summer Intern Engineer 2000

Worked in the Interconnect Systems Lab, Process and Materials Characterization Lab, and Physical Science Research Lab on Cu and low-K materials adhesion and mechanical properties, solving metallization and packaging problems.

Sandia National Labs: Materials and Engineering Science Center Livermore, CA
Graduate Research Associate 1999

Developed and implemented test techniques, equipment, and models for measuring thin film adhesion by nanoindentation at elevated temperatures. Investigated the effects of film thickness, test temperature, and environment on adhesion and mechanical properties of metallic thin films on dielectric substrates. Investigated mechanical properties of soft polymer films on metal substrates.

Microtechnology Laboratory/Center for Interfacial Engineering Minneapolis, MN
Graduate Researcher 1996 – 2000

Microelectronics fabrication (thermal oxidation, thin film deposition, thermal processing, pattern transfer, thin film characterization, etc.)

Investigated the micro-mechanical and tribological properties of thin films using nanoindentation techniques, SEM, and SPM, and established scaling laws for the adhesion of metallic films to semiconductor substrates for interconnect applications. Improved data acquisition system for IBM continuous micromechanical tester.

Department of Chemical Engineering and Materials Science Minneapolis, MN
Teaching/Research Assistant 1996 – 2000

Conducted principal research focused on novel techniques for thin film adhesion measurements and investigation of nanomechanical properties of thin films and multilayers. This research contributed to an understanding of film thickness, temperature, and contamination layer effects on the adhesion and plasticity-induced dislocation structures in thin films and coatings. Developed and conducted lab experiments, graded homework, and exams for Introduction to Materials Science, Failure Analysis, and Materials Design and Performance courses.

Moscow State University of Aviation Technology (MATI) Moscow, Russia
Research Assistant 1991 – 1996

Developed models and tested equipment to produce metal matrix fiber composite tubes using thermocompression.

Funding

National Science Foundation, NACE International, Motorola, Freescale Semiconductor, Seagate Technology, Texas Instruments, The Government of the Russian Federation

Professional Societies

Materials Research Society, ASME International, ASM International, TMS, NACE International, ASEE, National Center for Faculty Development & Diversity (NCFDD)

Technical Skills

Scanning electron microscopy (SEM); Focused Ion Beam (FIB) microscopy/micromachining; X-Ray diffractometry (XRD), Failure analysis (Emission microscopy, FIB), Scanning probe microscopy (SPM, AFM, SKPFM); Mechanical testing using Hysitron Triboscope, Triboindenter, Nanoindenter II, XP and IBM micromechanical tester (MMT), and servohydraulic testing equipment; dynamic mechanical analysis (DMA); thin film deposition and general microelectronics processing; mechanical and electrochemical samples preparation.

Honors and Activities

- Polymers Special Issue Guest Editor, 2022
- Russian Mega Grant Leading Scientist, 2021-2023
- Micromachines Special Issue Guest Editor, 2021
- Metals Special Issue Guest Editor, 2021
- 2019/2020 Winter Faculty Fellowship Program in Israel
- Micromachines Special Issue Guest Editor, 2018
- 2018 USF World Global Achievement Faculty Certificate
- Materials Special Issue Guest Editor, 2017
- 2016 USF Global Achievement Faculty Award, Global Student Success
- Included in 33rd Edition of American Men & Women of Science, 2015
- Cloud of Science Journal Editor since 2014 (cloudofscience.ru)

- 2013 13th International Conference on Fracture, International Scientific Committee, Thin Films, Coating, and Membranes International Scientific Committee, Session Organizer
- Reviewer for: NSF, DOE, NC State University, Nature, Nature Materials, Acta Materialia, Journal of Applied Polymer Science, Journal of Materials Research, Advanced Materials, Corrosion Science, Thin Solid Films, International Journal of Fracture, ASME and MRS Proceedings, Fatigue and Fracture of Engineering Materials and Structures, Tribology International, Journal of Applied Physics, Environmental Science and Pollution Research, Journal of Alloys and Compounds, Microfluidics and Nanofluidics, Science of Advanced Materials, Metallurgical Transactions A, Journal of Materials Engineering and Performance, Journal of Physics and Chemistry of Solids, Nanoscale, Journal of Reinforced Plastics and Composites, Polymer Engineering & Science, Sensors and others.
- 2008 NACE Environmentally Assisted Cracking (TEG 186X) Symposium Chair
- 2007 Fall MRS Conference, Fundamentals of Nanoindentation and Nanotribology IV Symposium AA Session Chair, Boston, MA, 11/07
- 2007 Tau Beta Pi Engineering Outstanding Faculty Researcher Award
- JOM Technical Advisor for the TMS Nanomechanical Behavior Committee
- 2007 NACE TEG 186X - Environmentally Assisted Cracking Committee Vice Chair
- Participant in the US-Japan Young Scientists Symposium on Nanotechnology and Nanomanufacturing, 11/06
- Who's who in Engineering Academia listing at www.academickeys.com since 2005
- 2006 Spring MRS F Symposium Organizer: Materials, Technology, and Reliability of Low-k Dielectrics and Copper Interconnects, 2005-2006
- Marie Curie Host Fellowship Recipient, 5-7/05
- International Journal of Nanotechnology Guest Editor, 7/2005
- NanoPol 2005 "Frontiers of Nanomechanical Testing" Workshop Organizer, Krakow, Poland, 6/2005
- NGCM2004 Best Presentation Award, 9/2004
- Board of Review Member and Key Reader for Metallurgical and Materials Transactions A, 2004-2019
- One of the most cited recent papers in the field of Materials Science determined by ISI® for February 2004: A.A. Volinsky, N.R. Moody, W.W. Gerberich, Acta Mater. Vol. 50/3, pp. 441-466, 2002, 2/2004
- 2004 Mechanical Integrity and Reliability of Electronic Materials Symposium Organizer for the 2004 ASME International Mechanical Engineering Congress, 11/2004
- 2004 Nano and Giga Challenges in Microelectronics Conference Co-organizer, 9/2004
- Microelectronic Engineering July 2004 Special Issue Guest Editor, 2004
- 2003 Symposium Organizer for the Summer ASME Meeting of the Applied Mechanics and Material Division, Symposium on Characterization and Mechanical Reliability of Advanced Electronic Materials at Nanoscale, 6/03
- 2002 Fall MRS Best Poster Award Nominee, 12/2002
- 2002 Nano and Giga Challenges in Microelectronics Conference Organizer, 9/2002
- 2001 Fall MRS Graduate Student Awards Committee, 11/2001
- 2001 Motorola Bravo Award for Hip7 technology certification, 10/2001
- Motorola SPS Engineering Technical Ladder Awards, since 4/2001
- Silver Quill Motorola Publication Awards, 2000-2003
- Motorola Direct Scholarship, 9/2000
- Materials Research Society Public Affairs Committee, 8/1998-12/2012
- Materials Research Society Gateway Taskforce, 11/1999 - 11/2001
- Materials Research Society Minnesota Chapter Travel Scholarship, 11/1999
- Materials Research Society Graduate Student Award, 4/1999
- 1998 Fall MRS Conference, Intergranular/Interfacial Fracture Symposium Session Chair, Boston, MA, 11/1998
- University of Minnesota Graduate School Fellowship, 9/1996.
- XXI and XXII Gagarin Conference First Prizes, 4/1995 and 4/1996
- The Russian Ministry of Science and Higher Education Research Scholarship, 1/1995
- Bauman University, Moscow Universities Engineering Drawing Competition Award, 3/1991
- Moscow State University of Aviation Technology, First Prize in the Technical Olympiad, 2/1990
- Moscow State University of Aviation Technology, Scientific Council Fellowship Award, 2/90-2/1996

Patents

System and Method for Electrowetting Actuation Utilizing Diodes, N.B. Crane, P. Mishra, A.A. Volinsky, US patent number 8,858,772, granted on 10/14/2014

Bidirectional Electrowetting Actuation with Voltage Polarity Dependence, N.B. Crane, P. Mishra, A.A. Volinsky, Pub. No.: WO/2011/084597, Publication Date: 14.07.2011, International Application No.: PCT/US2010/060763, International Filing Date: 12/16/2010

Publications

Books and Book Chapters

1. *Polymer-Based Magnetolectric Composites: Polymer as a Binder*, Y. Song, D. Pan, Z. Zuo, A.A. Volinsky, Chapter in *Magnetolectric Polymer-Based Composites: Fundamentals and Applications*, Editors: S. Lanceros-Mendez, P. Martins, Wiley, ISBN 978-3-527-34127-6, 2017
2. *The Role of Geometry and Plasticity in Thin, Ductile Film Adhesion*, A.A. Volinsky, LAP LAMBERT Academic Publishing, ISBN 978-3330003682, 2016
3. *Peer-to-peer Foreign Language E-learning Stimulated by Gamification and Virality*, I.V. Osipov, A.A. Volinsky, A.Y. Prasikova, Chapter 2 in *New Developments in Foreign Language Learning*, Editor: Adrienne Murphy, Nova Science Publishers, 2016, ISBN: 978-1-63484-276-1
4. *Environmental Effects on BaTiO₃ Polarization Dynamics Characterized by Piezoresponse Force Microscopy*, D.Y. He, L.J. Qiao, A.A. Volinsky, Chapter in *Piezoresponse Force Microscopy and Electrochemical Strain Microscopy*, Volume II: Applications, Springer, 2016
5. *Delaminated Film Buckling Microchannels*, A.A. Volinsky, P. Waters, Chapter 8 in *Mechanical Self Assembly: Science and Applications* (Xi Chen, Ed.), Springer, New York, 2013, ISBN: 978-1-4614-4561-6
6. *FE Practice Test with Complete Solutions. General Engineering*, A. Kaw, R. Pendyala, K. Nohra, A. Volinsky, S. Ioannou, M. Weng, S. Campbell, G. Besterfield, Lulu.com Publishing, <https://www.lulu.com/shop/product-17292303.html>, 2010
7. *Measurements for Mechanical Reliability of Thin Films*, D.T. Read and A.A. Volinsky, NATO Science for Peace and Security Series C: Environmental Security, Security and Reliability of Damaged Structures and Defective Materials, (G. Pluvinage, A. Sedmak, editors), Springer, Dordrecht, Netherlands, in cooperation with the NATO Public Diplomacy Division, pp. 337-358, 2009, ISBN: 978-90-481-2791-7
8. *Thin Films for Microelectronics and Photonics: Physics, Mechanics, Characterization, and Reliability*, D.T. Read and A.A. Volinsky, Chapter 4 in *Micro- and Opto-Electronic Materials and Structures: Physics, Mechanics, Design, Reliability, Packaging*, Volume 1 *Materials Physics / Materials Mechanics*, (Ephraim Suhir, Y.C. Lee, and C.P. Wong, editors), Springer, New York, pp. 135-180, January 2007, ISBN: 978-0-387-27974-9
9. *Nanoindentation Methods in Interfacial Fracture Testing, Chapter 13 in Comprehensive Structural Integrity* A.A. Volinsky, D.F. Bahr, M.D. Kriese, N.R. Moody, W.W. Gerberich, (I. Milne, R.O. Ritchie, B. Karihaloo, editors-in-chief), Volume 8: *Interfacial and Nanoscale Failure* (W.W. Gerberich, W. Yang, editors), Elsevier, pp. 453-493, 2003, ISBN: 978-0-08-043749-1
10. *The Role of Geometry and Plasticity in Thin, Ductile Film Adhesion*, A.A. Volinsky, Ph.D. Thesis, University of Minnesota, 2000

Edited Journals and Volumes

1. A.A. Volinsky, E.S. Marchenko, Special Issue Guest Editors, “Microstructural and Mechanical Properties of Biomedical Alloys”, *Metals*, 2024
2. A.A. Volinsky, A.P. Kondratov, E.S. Marchenko, O. Klinkova, Special Issue Guest Editors, “Processing of Thin Film Materials and Characterization of Their Mechanical Properties”, *Polymers*, 2023
3. A.A. Volinsky, L. Qiao, Special Issue Guest Editors, “Corrosion Cracking Behavior of Metals and Alloys”, *Metals*, 2021
4. A.A. Volinsky, T.Y. Tsui, Special Issue Guest Editors, “Small Scale Deformation using Advanced Nanoindentation Techniques, Volume II”, *Micromachines D: Materials and Processing*, 2021
5. A.A. Volinsky, T.Y. Tsui, Special Issue Guest Editors, “Small Scale Deformation using Advanced Nanoindentation Techniques”, *Micromachines D: Materials and Processing* (ISBN 978-3-03897-966-1), 2019
6. A.A. Volinsky, L. Qiao, Special Issue Guest Editors, “Stress Corrosion Cracking in Materials”, *Materials*, 2017
7. T.Y. Tsui, Y-C. Joo, L. Michaelson, M. Lane, A.A. Volinsky, editors. *Materials, Technology and Reliability of Low-k Dielectrics and Cooper Interconnects* (*Materials Research Society Symposium Proceedings Volume 914*), Warrendale, PA, USA, 2006
8. *International Journal of Nanotechnology Special Issue, “Nanotechnology Toolkit”*, Proceedings of the 2004 Nano and Giga Challenges in Microelectronics Conference, Krakow Poland
9. *Microelectronic Engineering Special Issue, Volume 75, Issue 1, Pages 1-126 (July 2004)*, Proceedings of the Symposium on Characterization and Mechanical Reliability of Advanced Electronic Materials at Nanoscale, 2003 ASME Mechanics and Materials Conference, Phoenix, AZ, USA, 17-20 June 2003, edited by A.A. Volinsky

Journal Articles

1. *Biocompatibility and Antibacterial Properties of NiTiAg Porous Alloys for Bone Implants*, G.A. Baigonakova, E/S. Marchenko, I.I. Gordienko, V.A. Larikov, A.A. Volinsky, A.O. Prokopchuk, *ACS Omega*, accepted, 2024
2. *Production and Properties of Electrically Conductive Polymer Composites Reinforced with Cotton Threads*, A.P. Kondratov, A.V. Lozitskaya, A.A. Volinsky, *Journal of Applied Polymer Science*, e55410, 2024
3. *Porosity and Phase Composition Effects on SHS-NiTi Structure and Mechanical Properties*, G.A. Baigonakova, E.S. Marchenko, O. Mamazakirov, A.A. Volinsky, *Advanced Powder Technology*, Vol. 35(4), 104395, 2024
4. *TiB₂ Effects on the AlMgB₁₊-TiB₂ Ceramics Structure and Properties*, V.D. Valikhov, I.A. Zhukov, D.A. Tkachev, M.V. Grigoriev, A.E. Matveev, A.A. Volinsky, *Ceramics International*, Vol. 50(7) Part A, pp. 10974-10981, 2024

5. *Effects of Different Cr Content on Microstructure, Mechanical and Electrical Properties of Cu-Zr-Cr Alloy*, Z. Li, M. Zhou, K. Jing, Y. Liu, G. Xin, H. Hu, J. Zou, B. Tian, Y. Zhang, A.A. Volinsky, *Materials Today Communications*, Vol. 38, 108408, 2024
6. *Heat Treatment Effects on Microstructure and Properties of Cu-Ti-Fe Alloys*, M. Zhou, K. Jing, H. Hu, Y. Zhang, Q. Bai, C. Tian, B. Tian, X. Li, A.A. Volinsky, J. Zou, *Materials Science and Engineering A*, Vol. 892, 1460668, 2024
7. *Causes of Odor in Kitchens, Bathrooms, and Toilets of Multi-story Residential Apartments with Natural Ventilation*, A.A. Volinsky, *International Journal of Civil Engineering and Technology*, Vol. 15(1), pp. 27-35, 2024
8. *Y Effects on the Cu-Zr-Fe Alloys' Aging Behavior and Properties*, M. Guo, M. Zhou, J. Zou, K. Jing, H. Hu, Y. Zhang, Q. Bai, C. Tian, B. Tian, X. Li, A.A. Volinsky, *Journal of Alloys and Compounds*, Vol. 977, 173418, 2024
9. *Nano-Y₂O₃ Effects on the Electrical Contact Properties of Al₂O₃-Cu/35Cr₃TiB₂ Composites*, Z. Ma, M. Zhou, B. Tian, Y. Zhang, H. Li, X. Li, J. Zou, H. Hu, K. Jing, Y. Liu, A.A. Volinsky, *Materials Characterization*, Vol. 207, 113474, 2024
10. *Microstructure and Electrical Contact Properties of Al₂O₃-Cu/(Cr, Zr) Composites*, H. Li, M. Zhou, B. Tian, Y. Zhang, Z. Ma, X. Li, J. Zou, H. Hu, K. Jing, Y. Liu, A.A. Volinsky, *Materials Today Communications*, Vol. 38, 107747, 2024
11. *Surface Structure and Properties of Hydroxyapatite Coatings on NiTi Substrates*, E.S. Marchenko, K.M. Dubovikov, G.A. Baigonakova, I.I. Gordienko, A.A. Volinsky, *Coatings*, Vol. 13(4), 722, 2023
12. *The Microstructure Evolution and Dynamic Recrystallization Mechanism of Cu-1.1Ni-0.7Co-0.45Si-0.3Cr Alloys During High Temperature Deformation*, M. Zhou, Y. Li, S. Tang, Y. Ban, Y. Zhang, B. Gan, X. Li, L. Fu, B. Tian, Y. Liu, A.A. Volinsky, *Coatings*, Vol. 13(3), 660, 2023
13. *Hot Deformation Behavior of 0.5Y₂O₃/Al₂O₃-Cu/30Mo3SiC Composites Doped with Reduced Graphene Oxide*, H. Zhu, M. Zhou, K. Jing, B. Tian, Y. Zhang, X. Li, Y. Li, X. Zheng, H. Li, Z. Ma, Y. Liu, A.A. Volinsky, J. Zou, *Journal of Materials Research and Technology*, Vol. 26, pp. 7444-7459, 2023
14. *Design and Multilevel Structuring of Shape Memory Polymers for Pleochroism Control*, A.P. Kondratov, A.A. Nikolaev, V.G. Nazarov, V.Y. Vereshchagin, A.A. Volinsky, *Journal of Applied Polymer Science*, Vol. 140(41), p. 54532, 2023
15. *Electrolyte Exposure Time Effects on Structure, Composition and Biocompatibility of Microarc Oxidation Coatings on Mg-Ca-Zn Alloys*, E.S. Marchenko, A.A. Shishelova, P.I. Butyagin, I.I. Gordienko, A.P. Khrustalev, S.S. Arbutova, I.A. Zhukov, G.A. Baigonakova, A.A. Volinsky, *Surface and Coatings Technology*, Vol. 473, 129982, 2023
16. *Microstructure and Electrical Contact Behavior of Yttrium Oxide Modified Al₂O₃-Cu/30Mo/3SiC Composite*, H. Zhu, B. Tian, M. Zhou, Y. Li, X. Zheng, S. Liang, S. Liu, W. Sun, Y. Liu, A.A. Volinsky, *Nanotechnology Reviews*, Vol. 12, 20220532, 2023
17. *Microstructure and Hot Deformation Behavior of the Cu-Sn-Ni-Zn-Ti(-Y) Alloy*, D. Xu, M. Zhou, Y. Zhang, S. Tang, Z. Zhang, Y. Liu, B. Tian, X. Li, Y. Jia, A.A. Volinsky, D. Li, Q. Liu, *Materials Characterization*, Vol. 196, 112559, 2023
18. *Microstructure and Electrical Contact Behavior of Al₂O₃-Cu/30W3SiC(0.5Y₂O₃) Composites*, X. Zheng, M. Zhou, Y. Zhang, B. Tian, Y. Li, H. Zhu, D. Li, S. Liang, S. Tang, Y. Liu, X. Li, Y. Jia, A.A. Volinsky, *Journal of Materials Research and Technology*, Vol. 22, pp. 2158-2173, 2023
19. *Ce Effects on Deformation-induced Microstructure Evolution in Cu-Ti-Ni-Mg Alloys*, Z. Zhang, M. Zhou, Y. Zhang, S. Tang, D. Xu, B. Tian, X. Li, Y. Jia, Y. Liu, A.A. Volinsky, *Advanced Engineering Materials*, Vol. 25, 2201913, 2023
20. *Design of High-performance Molybdenum Alloys Via Doping Metal Oxide and Carbide Strengthening: A Review*, H. Xing, P. Hu, C. He, X. Zhang, J. Han, F. Yang, R. Bai, W. Zhang, K. Wang, A.A. Volinsky, *Journal of Materials Science and Technology*, Vol. 160, pp. 161-180, 2023
21. *Effect of Fe₂O₃ on ZrTiO₄ Support for NH₃-SCR Catalytic Performance*, L. Yuan, P. Hu, B. Hu, J. Han, S. Ma, F. Yang, A.A. Volinsky, *Journal of Fuel Chemistry and Technology*, Vol. 51(12), pp. 1-13, 2023
22. *First-principles Calculations of the AlN/Ti Interface Properties*, L. Li, X. Yan, B. Yang, S. Yang, A.A. Volinsky, X. Pang, *Chemical Physics Letters*, Vol. 826, 140649, 2023
23. *Metallic and Non-metallic Components and Morphology of Iron-based Catalytic Effects for Selective Catalytic Reduction Performance: A Systematic Review*, B. Hu, L. Yuan, P. Hu, J. Han, S. Ma, F. Yang, A.A. Volinsky, *Molecular Catalysis*, Vol. 541, 113113, 2023
24. *Data-Driven Optimization of Hardness and Toughness of High-Entropy Nitride Coatings*, S. Wu, X. Xu, S. Yang, J. Qiu, A.A. Volinsky, X. Pang, *Ceramics International*, Vol. 49(13), pp. 21561-21569, 2023
25. *Клинический Случай Лечения Псориаза Аутонозодом Psorinum* (in Russian, *A Clinical Case of Psoriasis Treatment Using Psorinum Autosode*), A.A. Volinsky, *Гомеопатия и Фитотерапия (Homeopathy and Herbal Medicine)*, Vol. 2(62), pp. 27-29, 2023
26. *A Case of Psoriasis Treatment Using Psorinum Autosode*, A.A. Volinsky, *International Journal of Homoeopathic Sciences*, Vol. 7(2), Part G, pp. 457-459, 2023
27. *Abnormally High Work Hardening Ability and Excellent Comprehensive Properties of Copper Alloys due to Multiple Twins and Precipitates*, Y. Ban, M. Zhou, Y. Zhang, Y. Jia, Y. Pang, Y. Li, S. Tang, X. Li, A.A. Volinsky, E.S. Marchenko, *Materials & Design*, Vol. 228, 111819, 2023

28. *Improved Microstructure, Mechanical Properties and Electrical Conductivity of the Cu-Ni-Sn-Ti-Cr Alloy due to Ce Micro-addition*, S. Tang, M. Zhou, Y. Zhang, D. Xu, Z. Zhang, X. Zheng, D. Li, X. Li, B. Tian, Y. Jia, Y. Liu, A.A. Volinsky, E.S. Marchenko, *Materials Science & Engineering A*, Vol. 871, 144910, 2023
29. *Engineered Fibrous NiTi Scaffolds with Cultured Hepatocytes for Liver Regeneration in Rats*, O.V. Kokorev, E.S. Marchenko, I.A. Khlusov, A.A. Volinsky, Y.F. Yasenchuk, A.N. Monogenov, *ACS Bioengineering Science & Engineering*, Vol. 9(3), pp. 1558-1569, 2023
30. *Micro-Nano Secondary Phase Greatly Increases the Plasticity of Titanium-Zirconium-Molybdenum Alloy*, S. Li, P. Hu, T. Liu, Q. Shi, B. Hu, X. Hua, S. Ge, J. Han, W. Zhang, K. Wang, A.A. Volinsky, *International Journal of Refractory Metals and Hard Materials*, Vol. 112, 106152, 2023
31. *Effect of Y_2O_3 on the Electrical Contact Behavior of Al_2O_3 -Cu/MoTa Composites*, Y. Li, M. Zhou, Y. Zhang, H. Zhu, X. Zheng, S. Liang, S. Tang, B. Tian, Y. Liu, X. Li, A.A. Volinsky, C. Zheng, *Coatings*, Vol. 13(2), 252, 2023
32. *Ce Effects on Dynamic Recrystallization of the Cu-Fe-Ti-Mg Alloys Due to Hot Compression*, Q. Cao, M. Zhou, Y. Zhang, H. Hu, X. Li, B. Tian, Y. Jia, Y. Liu, A.A. Volinsky, *Journal of Materials Engineering and Performance*, 2023
33. *Mechanical Characterization of High Volume Fraction $Al_{70}Fe_{30}$ - Al_2O_3 Composite Fabricated by Semisolid Powder Processing*, S. Aghajani, V. Pouyafar, R. Meshkabadi, A.A. Volinsky, A. Bolouri, *International Journal of Advanced Manufacturing Technology*, Vol. 125, pp. 2569-2580, 2023
34. *An Overview of Synthesis and Structural Regulation of Magnetic Nanomaterials Prepared by Chemical Coprecipitation*, Z. Li, Y. Sun, S. Ge, F. Zhu, F. Yin, L. Gu, F. Yang, P. Hu, G. Chen, K. Wang, A.A. Volinsky, *Metals*, Vol. 13(1), 152, 2023
35. *Plasticity of Porous NiTi Alloys Obtained by Self-propagating High-temperature Synthesis in Closed and Open Flow Reactors*, E.S. Marchenko, Y.F. Yasenchuk, O. Mamazakirov, A.A. Klopotov, G.A. Baigonakova, A.A. Volinsky, S.V. Gunter, *Materials and Manufacturing Processes*, Vol. 38(6), pp. 659-667, 2023
36. *Numerical and Experimental Study of Porous NiTi Anisotropy Under Compression*, E.S. Marchenko, A.A. Kozulin, Y.F. Yasenchuk, A.V. Vetrova, A.A. Volinsky, *Journal of Materials Research and Technology*, Vol. 22, pp. 3502-3510, 2023
37. *Mullins Effect in Polymer Large Deformation Strain Gauges*, A.P. Kondratov, A.V. Lozitskaya, V.N. Samohin, A.A. Volinsky, *Journal of Polymer Research*, Vol. 30, p. 36, 2023
38. *Enhanced Mechanical Properties and High Electrical Conductivity of Copper Alloy via Dual-Nanoprecipitation*, M. Zhou, Y. Geng, Y. Zhang, Y. Ban, X. Li, Y. Jia, S. Liang, B. Tian, Y. Liu, A.A. Volinsky, *Materials Characterization*, Vol. 195, p. 112494, 2023
39. *Exploring the Formation Mechanism, Evolution Law, and Precise Composition Control of Interstitial Oxygen in Body-Centered Cubic Mo*, H. Xing, P. Hu, C. He, X. Zhang, F. Yang, J. Han, S. Ge, Hua, W. Zhang, K. Wang, A.A. Volinsky, *Metals*, Vol. 13(1), 1, 2023
40. *Mechanical and Electrical Properties of $Cu_{30}Cr_{0.2}Zr$ Composites Enhanced by CeO_2/GO* , S. Liang, Y. Li, Y. Zhang, M. Zhou, S. Liu, X. Li, Y. Geng, B. Tian, Y. Jia, Y. Liu, A.A. Volinsky, *Journal of Alloys and Compounds*, Vol. 934, p. 167759, 2023
41. *Microstructure and Hot Deformation Behavior of the Cu-Sn-Ni-Zn-Ti(-Y) Alloy*, D. Xu, M. Zhou, Y. Zhang, S. Tang, Z. Zhang, Y. Liu, B. Tian, X. Li, Y. Jia, A.A. Volinsky, D. Li, Q. Liu, *Materials Characterization*, Vol. 196, p. 112559, 2023
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Conference Proceedings Papers

1. *Два Клинических Случая Изопатического и Гомеопатического Лечения Коронавирусной Инфекции 2019 (Two Clinical Cases of Isopathic and Homeopathic Treatment of Coronavirus Infection 2019, in Russian)*, A.A. Volinsky, S.V. Gunter, XXXII Всероссийская Научно-практическая Конференция с Международным Участием “Актуальные Вопросы Гомеопатии. Место и Возможности Гомеопатического Метода в Практическом

- Здравоохранении” (XXXII Russian Scientific Applied Practical Conference with International Participation “Current Issues in Homeopathy, Place and Possibilities of the Homeopathic Method in Practical Health Care”), St. Petersburg, Russia, 10-11 June 2022
2. *Nonparametric Estimation of the Derivatives of a Regression Function*, O. Savchuk, A.A. Volinsky, R Package Npregderiv, <https://cran.r-project.org/web/packages/npregderiv/index.html>, 2020
 3. *Клинический Случай Лечения Хронического Тонзиллита с Помощью Гомеопатии и Аутонозодов (in Russian, A Clinical Case of Chronic Tonsillitis Treatment Using Homeopathy and Autonosodes)*, A.A. Volinsky, Российский Гомеопатический Портал (Russian Homeopathic Portal), <http://rushhomeopat.ru/professionals/journal/clinical-homeopathy/11308.html>, 2020
 4. *Десенсибилизация Аллергии на Основе Метода Динамизации Аллергенов (in Russian, Allergy Desensitization Based on Allergens Dynamization Method, in Russian)*, A.A. Volinsky, Российский Гомеопатический Портал (Russian Homeopathic Portal), <http://rushhomeopat.ru/professionals/journal/clinical-homeopathy/11205.html>, 2020
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 6. *Human Anaerobic Intestinal “Rope” Parasites*, A.A. Volinsky, N.V. Gubarev, G.M. Orlovskaya, E.V. Marchenko, Cornell University Library, arxiv.org/pdf/1301.0953, 2013
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 12. *Mechanical Properties of Evaporated Gold Films. Hard Substrate Effect Correction*, K. Du, X. Pang, C. Chen, A.A. Volinsky, Mat. Res. Soc. Symp. Proc. Vol. 1086E, U8.41, 2008
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 14. *Moisture Effects on Gold Nanowear*, M. Pendergast, A.A. Volinsky, X. Pang, R. Shields, Mat. Res. Soc. Symp. Proc. Vol. 1085E, T5.10, 2008
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 17. *Pattern Formation During Nanowear of Gold Films*, M.E. Pendergast, X. Pang, A.A. Volinsky, Mat. Res. Soc. Symp. Proc. Vol. 1059E, KK10.3, 2008
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 24. *Moisture Effects on Copper Thin Film Adhesion*, P.J. Waters, A.A. Volinsky, Proceedings of IMECE: ASME 2005 Orlando FL, Nov. 5-11, paper 81532, 2005
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Presentations

1. *Improvements of NiTi Implants for Medical Applications*, [A.A. Volinsky](#), Science of the Future-Science of the Youth, 5th International Scientific Conference, Oryol, Russia, 9/23 ([invited talk](#))
2. *Materials Science Approach to NiTi Medical Implants and Applications*, [A.A. Volinsky](#), First International Symposium Advanced Materials and Technologies in Medicine, Altay, Russia, 7/23 ([invited talk](#))
3. *Mechanics of Materials Review Lecture*, [A.A. Volinsky](#), The National Research Tomsk State University, Tomsk, Russian Federation, 7/22 ([invited lecture](#))
4. *Materials Science and Engineering Review Lecture*, [A.A. Volinsky](#), The National Research Tomsk State University, Tomsk, Russian Federation, 6/22 ([invited lecture](#))
5. *Master Class. Making Awesome Figures for Research Papers*, [A.A. Volinsky](#), The National Research Tomsk State University, Tomsk, Russian Federation, 7/21 ([invited lecture](#))
6. *How to Publish Research Papers in High Impact Journals*, [A.A. Volinsky](#), The National Research Tomsk State University, Tomsk, Russian Federation, 6/21 ([invited lecture](#))
7. *Materials Science and Engineering FE Review*, [A.A. Volinsky](#), FE Exam Review Lecture, University of South Florida, Tampa, FL, 2/12, 9/12, 2/16, 9/16, 9/17, 2/18, 9/18, 2/19, 2/20, 10/21, 1/22, 10/22, 2/23, 9/23 ([invited lectures](#))
8. *Thin Films Mechanics*, [A.A. Volinsky](#), Henan University of Science and Technology, Luoyang, China, 5/16 ([invited lecture](#))
9. *Surface Effects in Thin Film Fracture*, [A.A. Volinsky](#), University of Science and Technology Beijing, Beijing, China, 5/16 ([invited lecture](#))
10. *Cell Adhesion Strength Modulated by Tuning Matrix Stiffness*, A. Sharfeddin, M. Gross. [A.A. Volinsky](#), N.D. Gallant, 2015 University of South Florida Research Day, Tampa, FL 11/15 ([poster](#))
11. *Synthesis and Characterization of the MC Nylon/Modified Yttrium Hydroxide Nanocomposites*, J. Chen, [A.A. Volinsky](#), W. He, 2015 University of South Florida Research Day, Tampa, FL 11/15 ([poster](#))
12. *Selected Topics in Advanced Materials*, [A.A. Volinsky](#), Xian University of Architecture and Technology, Xian, China, 7/15 ([invited lecture](#))
13. *Materials and Engineering Education in the US*, [A.A. Volinsky](#), Henan University of Science and Technology, Luoyang, China, 7/15 ([invited lecture](#))
14. *Irradiated 3C-SiC Single Crystals as the Maximum Temperature Sensors*, [A.A. Volinsky](#), Tsinghua University, Beijing, China, 6/15 ([invited seminar](#))
15. *Introductory Materials Education in the US*, [A.A. Volinsky](#), University of Science and Technology Beijing, Beijing, China, 5/15 ([invited lecture](#))
16. *Assessing Viscoelastic Properties of Polydimethylsiloxane (PDMS) Using Loading and Unloading of the Compression Test*, M. Fincan, [A.A. Volinsky](#), Z. Wang, N. Gallant, Characterization of Minerals, Metals, and Materials Symposium, 144th TMS 2015 Annual Conference, Orlando, FL, 3/15
17. *Adhesion of Ge Electrode to Ni Substrate for Li Ion Battery Applications*, A. Jeyaranjan, [A.A. Volinsky](#), N. Rudawski, K. Jones, Advances in Thin Films for Electronics and Photonics Symposium, 144th TMS 2015 Annual Conference, Orlando, FL, 3/15
18. *Structure, Composition, Electrical and Optical Properties of Sputtered PbSe Thin Films on Si*, X. Sun, K. Gao, X. Pang, H. Yang, H. Tran, [A.A. Volinsky](#), Energy, Materials, Nanotechnology Meeting on Ceramics, Orlando, FL, 1/15 ([invited talk](#))
19. *Molecular Studies and Characterization of Mucous Intestinal Features in Humans*, [A.A. Volinsky](#), D. Rodriguez, E.V. Marchenko, Nano-Florida Conference 2014, Miami, FL 9/14 ([poster](#))
20. *Looking Beyond the Human Rope Worms, Homo Funis Vermis*, [A.A. Volinsky](#), Biological Medicine 2014: Healing Lyme Without Antibiotics, Bellevue, WA, 5/14 ([invited lecture](#))
21. *Thin Film Mechanics and Adhesion Failure*, [A.A. Volinsky](#), Transitions Optical Inc., Pinellas Park, FL, 4/14 ([invited seminar](#))
22. *Nanomechanical Structures Testing*, [A.A. Volinsky](#), Henan University of Science and Technology, Luoyang, China, 12/13 ([invited seminar](#))
23. *Introduction to Materials Science and Engineering Review Lecture*, [A.A. Volinsky](#), Xian University of Architecture and Technology, Xian, China, 12/13 ([invited lecture](#))
24. *Human Rope Worms: Description and Current DNA Findings*, [A.A. Volinsky](#), E.V. Marchenko, N.V. Gubarev, G.M. Orlovskaya, 2013 International Chronic Disease Conference, Seattle, WA, 9/13 ([invited talk](#))
25. *Human Rope Worms: Patented Removal Methods*, N.V. Gubarev, [A.A. Volinsky](#), 2013 International Chronic Disease Conference, Seattle, WA, 9/13 ([invited talk](#))

26. *Advanced Nanomechanical Testing Techniques*, [A.A. Volinsky](#), University of Leoben, Leoben, Austria, 7/13 ([invited seminar](#))
27. *Residual Stress and Fracture Toughness of Sputtered TiN Films*, X. Pang, L. Zhang, H.T. Tran, [A.A. Volinsky](#), 13th International Congress on Fracture (ICF 13), Beijing, China, 6/13 ([invited keynote talk](#))
28. *Thin Film Delamination and X-ray Mirror Curvature Control*, [A.A. Volinsky](#), Arizona State University, Tempe, AZ, 4/12 ([invited seminar](#))
29. *Polydimethylsiloxane Mechanical Properties and Their Effects on Cell Growth*, Z. Wang, K. Elineni, N.D. Gallant, A.A. Volinsky, Biological Materials Science Symposium, 141st TMS 2012 Annual Conference, Orlando, FL, 3/12
30. *The Grand Challenge of Soft Tacky Polymers Nanoindentation*, [A.A. Volinsky](#), Z. Wang, N. Gallant, L.J. Qiao, International Symposium on Plasticity 2012 and Its Current Applications, San Juan, Puerto Rico, 1/12 ([invited talk](#))
31. *Irradiated 3C-SiC Maximum Temperature Sensor*, [A.A. Volinsky](#), General Electric, Greenville, SC, 10/11 ([invited seminar](#))
32. *Carbon Deposition by Film Delamination and X-ray Mirror Curvature Control*, [A.A. Volinsky](#), Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare, Frascati, Italy, 7/11 ([invited seminar](#))
33. *Advanced Nanomechanical Characterization Techniques*, [A.A. Volinsky](#), Hainan University, Haikou, China, 3/11 ([invited lecture](#))
34. *Non-standard Application of the Nanoindentation Apparatus*, [A.A. Volinsky](#), Moscow State University of Aviation Technology, MATI, Moscow, Russia, 2/11 ([invited lecture](#))
35. *Materials Education in the United States of America*, [A.A. Volinsky](#), University of Science and Technology Beijing, China, 10/10 ([invited lecture](#))
36. *Advanced Nanomechanical Testing with Nanoindentation*, [A.A. Volinsky](#), Henan University of Science and Technology, Luoyang, China, 10/10 ([invited seminar](#))
37. *Compliant MEMS Devices Actuation with the Nanoindenter and Electrowetting Experiments*, [A.A. Volinsky](#), N.B. Crane, C. Lusk, University of Science and Technology Beijing, China, 10/10 ([invited seminar](#))
38. *Total Variation Regularization for Thin Film Stress Analysis*, J.M. Carballo, A.A. Volinsky, Nano-Florida Conference, Orlando, FL, 9/09
39. *Fracture Patterns Formation due to Rapid Cooling of Mo/Si Nanolayers*, R. Shields, G. Kravchenko, J. Rachwal, A.A. Volinsky, Nano-Florida Conference, Orlando, FL, 9/09
40. *Evaporation of Pump Oil and Alkanes*, N. Waldstein, A.A. Volinsky, Nano-Florida Conference, Orlando, FL, 09/09
41. *X-Ray Stress Analysis of Silicon Wafers Under Four-point Bending*, J.D. Rachwal, A.A. Volinsky, H. Stöcker, D.C. Meyer, Nano-Florida Conference, Orlando, FL, 9/09
42. *Alternative Applications of a Nanoindenter*, [A.A. Volinsky](#), N.B. Crane, C. Lusk, N. Gallant, Florida Institute of Technology, Mechanical and Aerospace Engineering Seminar, Melbourne, FL, 8/09 ([invited seminar](#))
43. *Compliant MEMS Device Actuation and Fracture*, [A.A. Volinsky](#), D. Ke, C. Lusk, 12th International Congress on Fracture (ICF 12), Ottawa, Canada, 8/09
44. *Simplified Quantum Mechanics for Engineers*, [A.A. Volinsky](#), European X-ray Free Electron Laser, Hamburg Germany, 7/10 ([invited lecture](#))
45. *International US-Germany Joint Study of X-Ray Optics Thermomechanical Stability and Control*, [A.A. Volinsky](#), European Free Electron Laser, Hamburg Germany, 7/10 ([invited talk](#))
46. *Thin Films Mechanical Stability and Fracture Prevention*, [A.A. Volinsky](#), European X-ray Free Electron Laser, Hamburg Germany, 6/10 ([invited talk](#))
47. *Measuring the Response of Polymeric Dielectric Layers to Electrowetting*, P. Mishra, A.A. Volinsky, N. Crane, Materials Research Society 2009 Spring Meeting, Symposium U: Electrofluidic Materials and Applications - Micro/Biofluidics, Electrowetting, and Electrospinning, San Francisco, CA, 3/09
48. *Force Measurements for Characterization of Electrowetting Response*, V. Ramadoss, P. Mishra, A.A. Volinsky, N. Crane, Materials Research Society 2009 Spring Meeting, Symposium U: Electrofluidic Materials and Applications - Micro/Biofluidics, Electrowetting, and Electrospinning, San Francisco, CA, 3/09
49. *Layered Magnetolectric Composites Performance Optimization*, [A.A. Volinsky](#), G. Kravchenko, E. Pan, Materials Research Society 2008 Fall Meeting, Symposium C: Theory and Applications of Ferroelectric and Multiferroic Materials, Boston, MA, 12/08
50. *Mechanical Properties of Single and Polycrystalline SiC Thin Films*, J. Deva Reddy, [A.A. Volinsky](#), C. Frewin, C. Locke, S.E. Sadow, Materials Research Society 2008 Fall Meeting, Fundamentals of Nanoindentation and Nanotribology IV Symposium, Boston, MA, 12/08 ([invited talk](#))
51. *Pattern Formation in Si/Cr/Au Thin Film System*, A. Bernfeld, [A.A. Volinsky](#), D. Gracias, Materials Research Society 2008 Fall Meeting, Nanoscale Pattern Formation Symposium, Boston, MA, 12/08 ([poster](#))
52. *Tip-induced Calcite Single Crystal Nanowear*, R. Gunda, [A.A. Volinsky](#), Materials Research Society 2008 Fall Meeting, Nanoscale Pattern Formation Symposium, Boston, MA, 12/08 ([poster](#))
53. *Electrowetting Forces in an Electrowetting-Driven Oscillator*, N.B. Crane, A.A. Volinsky, V. Ramadoss, M. Nellis, P. Mishra, X. Pang, Materials Research Society 2008 Fall Meeting, Microelectromechanical Systems-Materials and Devices Symposium, Boston, MA, 12/08

54. *Compliant MEMS Motion Characterization by Nanoindentation*, J.G. Choueifati, C. Lusk, X. Pang, [A.A. Volinsky](#), Materials Research Society 2008 Fall Meeting, Microelectromechanical Systems-Materials and Devices Symposium, Boston, MA, 12/08 ([poster](#))
55. *Degradation of Electrowetting Systems Utilizing Polymer Dielectric Layers*, N.B. Crane, A.A. Volinsky, Du Ke, P. Mishra, Symposium GG: Microelectromechanical Systems--Materials and Devices II, Boston, MA, 12/08 ([poster](#))
56. *Temperature Effect on Alkanes Evaporation Rates: Proper Lubricant Selection*, [A.A. Volinsky](#), N.A. Waldstein, Materials Research Society 2008 Fall Meeting, Symposium SS: Selecting and Qualifying New Materials for Use in Regulated Industries, Boston, MA, 12/08
57. *Nanomechanical Testing: From Corrosion Protection Coatings to MEMS Devices*, [A.A. Volinsky](#), Qualcomm Seminar Series, San Jose, CA, 8/08 ([invited talk](#))
58. *Lubricant Evaporation Rate Measurements: Methods Development and Limitations*, [A.A. Volinsky](#), N.A. Waldstein, Seagate Technology, Scotts Valley, CA, 8/08 ([invited talk](#))
59. *Temperature-induced Curvature Control in X-Ray Optics*, [A.A. Volinsky](#), G. Kravchenko, D.C. Meyer, Hamburg Synchrotron HASYLAB DESY, Hamburg Germany, 7/08 ([invited talk](#))
60. *Thin Film Fracture Prevention Practices*, [A.A. Volinsky](#), Leibniz-Institute for Catalysis at the University of Rostock, Berlin Germany, 7/08 ([invited talk](#))
61. *Mechanical Properties of Advanced Interconnect Structures in Microelectronic Devices*, [A.A. Volinsky](#), AMD Dresden, Germany, 7/08 ([invited talk](#))
62. *Non-traditional applications of a scanning nanoindentation apparatus*, [A.A. Volinsky](#), K. Du, N.B. Crane, C. Lusk, International Meeting of Maria Curie Fellows - Participants of 6th FP ToK Project on Nanoengineering for Expertise and Development (NEED), Krakow, Poland, 6/08 ([invited talk](#))
63. *Nanoindentation Techniques for Assessing Mechanical Properties of Advanced Interconnect Structures*, [A.A. Volinsky](#), IMEC, Leuven, Belgium, 5/08 ([invited talk](#))
64. *Mechanical Properties of Evaporated Gold Films. Hard Substrate Effect Correction*, [A.A. Volinsky](#), K. Du, X. Pang, C. Chen, Materials Research Society 2008 Spring Meeting, Mechanics of Nanoscale Materials Symposium, San Francisco, CA, 3/08
65. *Residual Stress in CVD-grown 3C-SiC Films on Si Substrates*, [A.A. Volinsky](#), G. Kravchenko, P. Waters, J. Deva Reddy, C. Locke, C. Frewin, S.E. Sadow, Materials Research Society 2008 Spring Meeting, Silicon Carbide-Materials, Processing, and Devices Symposium, San Francisco, CA, 3/08
66. *Moisture Effects on Gold Nanowear*, [A.A. Volinsky](#), M. Pendergast, X. Pang, R. Shields, Materials Research Society 2008 Spring Meeting, Nanoscale Tribology-Impact for Materials and Devices Symposium, San Francisco, CA, 3/08 ([poster](#))
67. *Chromium Oxide Coatings for Steel Corrosion Protection*, [A.A. Volinsky](#), X. Pang, K. Gao, Army Corrosion Summit 2008, Clearwater, FL, 2/08
68. *Water Effects on Gold Nanowear*, M. Pendergast, [A.A. Volinsky](#), NSF IREE Grantees Conference, Purdue University, West Lafayette, IN, 10/07 ([poster](#))
69. *Mechanical Properties of Advanced Interconnect Structures*, [A.A. Volinsky](#), Infineon, Munich, Germany, 06/07 ([invited talk](#))
70. *Nanomechanical Wear Testing*, [A.A. Volinsky](#), Frontiers of Nanomechanical Testing Workshop, Krakow, Poland, 6/07
71. *Interactive Growth of Delamination and Channel Cracks in Thin Films*, B. Yang, [A.A. Volinsky](#), ASME Applied Mechanics and Materials Conference, Austin, TX, 6/07
72. *Fracture of Chromium Oxide Coatings*, [A.A. Volinsky](#), X. Pang, K.W. Gao, University of Science and Technology Beijing, China, 12/06, ([invited talk](#))
73. *Mechanical Reliability of Thin Films and Multilayers*, [A.A. Volinsky](#), University of Science and Technology Beijing, China, 12/06, ([invited lecture](#))
74. *Fracture and Wear Patterns in Thin Films and Single Crystals*, [A.A. Volinsky](#), US-Japan Young Scientists Symposium on Nanotechnology and Nanomanufacturing, 11/06 ([poster](#))
75. *Patterns in Fracture and Wear*, [A.A. Volinsky](#), Tokyo Institute of Technology, Japan, 11/06
76. *Fracture Patterns*, [A.A. Volinsky](#), Osaka University, Japan, 11/06
77. *Single Crystal Surface Reconstruction Patterns*, [A.A. Volinsky](#), M. Pendergast, B. Such, M. Szymonski, Gordon Research Conference, Thin Film and Small Scale Mechanical Behavior, Waterville, ME, 7/04 ([poster](#))
78. *Mechanical Aspects of Anti-Corrosive Coatings Performance Tests*, [A.A. Volinsky](#), NACE International Corrosion 2006 Conference, San Diego, CA, 3/06
79. *Moisture-induced Thin Film Adhesion Degradation*, [A.A. Volinsky](#), P. Waters, NACE International Corrosion 2006 Conference, San Diego, CA, 3/06
80. *Wear-induced Nanoscale Surface Reconstruction Patterns*, [A.A. Volinsky](#), B. Such, M. Szymonski, 135th TMS 2006 Annual Conference, San Antonio, TX, 3/06
81. *Thickness Effects on the Plasticity of Gold Films*, M. J. Cordill, N.R. Moody, D.P. Adams, D.F. Bahr, [A.A. Volinsky](#), W.W. Gerberich, 135th TMS 2006 Annual Conference, San Antonio, TX, 3/06
82. *Microchannel Manufacturing for Lab-on-a-chip Applications*, [A.A. Volinsky](#), 2006 US-Japan Young Researchers Exchange Program Workshop for Nanotechnology and Nanomanufacturing, Boston, MA, 3/06

83. *Moisture and Stress Effects on Thin Film and Coating Adhesion*, [A.A. Volinsky](#), P. Waters, Army Corrosion Summit 2006, Clearwater, FL, 2/06
84. *A New Method of Testing Thin Film Adhesion in a Wet Environment*, P. Waters, A.A. Volinsky, Tri-service Corrosion Conference, Orlando, FL, 11/05 ([poster award](#))
85. *Novel Adhesion Test for Environmentally Assisted Fracture in Thin Films*, [A.A. Volinsky](#) and P.J. Waters, Tri-service Corrosion Conference, Orlando, FL, 11/05
86. *Simulation of Periodic Crack Growth in Thin Films*, [A.A. Volinsky](#), B. Yang, 2005 ASME Mechanical Engineering Congress, Orlando FL, 11/05
87. *Moisture Effects on Copper Thin Film Adhesion*, [A.A. Volinsky](#), P.J. Waters, 2005 ASME Mechanical Engineering Congress, Orlando FL, 11/05
88. *Acoustic Emission of Thin Film Indentation-induced Fracture*, [A.A. Volinsky](#), D. Hess, W.W. Gerberich, 2005 ASME Mechanical Engineering Congress, Orlando FL, 11/05
89. *Probing Thin Film Mechanical Properties by Nanoindentation*, [A.A. Volinsky](#), Technische Universität Dresden, Institut für Strukturphysik, Dresden, Germany, 8/05 ([invited seminar](#))
90. *Multidisciplinary Field of Materials Science and Engineering*, [A.A. Volinsky](#), Jagiellonian University, Department of Physics, Astronomy and Computer Science, Krakow, Poland, 6/05 ([invited lecture](#))
91. *Nanoindentation for Thin Film Fracture Testing*, [A.A. Volinsky](#), NanoPol 2005: Frontiers of Nanomechanical Testing Workshop, Krakow, Poland, 6/05
92. *Bridging Thin Film Fracture and Surface Science*, [A.A. Volinsky](#), Jagiellonian University, Department of Physics, Astronomy and Computer Science, Krakow, Poland, 5/05 ([invited seminar](#))
93. *Stress-induced Periodic Fracture Patterns in Thin Films*, [A.A. Volinsky](#), N.R. Moody, D.C. Meyer, 11th International Congress on Fracture (ICF 11), Turin, Italy, 3/05
94. *Sub-Critical Telephone Cord Delamination Propagation and Adhesion Measurements*, Materials Research Society 2004 Fall Meeting, [A.A. Volinsky](#), P.J. Waters, J.D. Kiely, E.C. Johns, Stability of Thin Films and Nanostructures Symposium, Boston, MA, 12/04
95. *Micro-fluidics Applications of Telephone Cord Delamination Blisters*, [A. A. Volinsky](#), P.J. Waters, G. Wright, Materials Research Society 2004 Fall Meeting, Mechanically Active Materials Symposium, Boston, MA, 12/04 ([poster](#))
96. *Irradiated Single Crystals for High Temperature Measurements in Space Applications*, [A.A. Volinsky](#), V.A. Nikolaenko, V.A. Morozov, V.P. Timoshenko, Materials Research Society 2004 Fall Meeting, Materials for Space Applications Symposium, Boston, MA, 12/04
97. *Thin Films Periodic Fracture Patterns*, [A.A. Volinsky](#), 2004 ASME Mechanical Engineering Congress, Anaheim, CA 10/04
98. *Nanoindentation for advanced microelectronic interconnects mechanical characterization*, [A.A. Volinsky](#), Symposium and Summer School: Nano and Giga Challenges in Microelectronics 2004, Cracow, Poland, 9/04 ([invited poster](#))
99. *Low-K Dielectrics Metrology*, [A.A. Volinsky](#), Porotech Ltd., Vaughan, ON, Canada, 8/04 ([invited talk](#))
100. *Thin Film Mechanical Reliability: Environmental Effects*, [A.A. Volinsky](#), NIST Workshop on Reliability Issues in Nanomaterials, Boulder, CO, 8/04
101. *Thin Film Moisture Induced Delamination for Microchannel Fabrication*, P. Waters, [A.A. Volinsky](#), Gordon Research Conference, Gordon Research Conference, Thin Film and Small Scale Mechanical Behavior, Waterville, ME, 7/04 ([poster](#))
102. *Stress-induced Fracture Patterns in Thin Films*, [A.A. Volinsky](#), Gordon Research Conference, Thin Film and Small Scale Mechanical Behavior, Waterville, ME, 7/04 ([poster](#)),
103. *Nanoindentation for Microelectronic Materials Characterization*, [A.A. Volinsky](#), Intel, Chandler, AZ, 3/04 ([invited talk](#))
104. *Mechanical Reliability of Advanced Interconnect Structures*, [A.A. Volinsky](#), IEEE Nanoscale Device and System Integration Conference, Miami, FL 2/04 ([invited talk](#))
105. *Nanoindentation Techniques for Assessing Mechanical Reliability of Microelectronic Interconnect Structures*, [A.A. Volinsky](#), USF Physics Colloquium, 1/04
106. *Irradiated Cubic Single Crystal SiC as a High Temperature Sensor*, [A.A. Volinsky](#), L. Ginzburgsky, V.A. Morozov, Materials Research Society 2003 Fall Meeting, Radiation Effects and Ion Beam Processing of Materials Symposium, Boston, MA, 12/03
107. *Fracture patterns in Thin Films and Multilayers*, [A.A. Volinsky](#), D.C. Meyer, T. Leisegang, P. Paufler, Materials Research Society 2003 Fall Meeting, Thin Films-Stresses and Mechanical Properties X Symposium, Boston, MA, 12/03
108. *Application of FIB/SEM and TEM to Single Bit Failure Analysis in SRAM arrays*, [A.A. Volinsky](#), W. Qin, L. Rice, L. Johnston, N.D. Theodore, Materials Research Society 2003 Fall Meeting, Micro- and Nanosystems Symposium, Boston, MA, 12/03 ([poster](#))
109. *Surface Oxide Evolution on Al-Si Bond Wires*, [A.A. Volinsky](#), W. Qin, R. Doyle, T. Scharr, M. Shah, M. Kottke, D. Werho, N.D. Theodore, Materials Research Society 2003 Fall Meeting, Materials, Integration, and Packaging Issues for High-Frequency Devices Symposium, Boston, MA, 12/03

110. *Oxide Reduction in Advanced Metal Stacks for Microelectronic Application*, [A.A. Volinsky](#), W. Qin, D. Werho, N.D. Theodore, Materials Research Society 2003 Fall Meeting, Fundamentals of Novel Oxide/Semiconductor Interfaces Symposium, Boston, MA, 12/03 ([poster](#))
111. *Microstructure and Mechanical Behavior of Novel Low-K Dielectric Films*, [A.A. Volinsky](#), Society of Engineering Science 40th Annual Technical Meeting, Ann Arbor MI, 10/03 ([invited talk](#))
112. *Mechanical Reliability and Characterization of Modern Microelectronic Interconnect Structures*, [A.A. Volinsky](#), Nano-Engineering World Forum, Marlborough, MA, 6/03 ([invited talk](#))
113. *SEM-related FAB Analytical Support*, [A.A. Volinsky](#), 2003 Phoenix Technical Forum, Chandler AZ, 3/03
114. *Characterization of Advanced Microelectronic Interconnect Structures*, [A.A. Volinsky](#), University of South Florida Department of Mechanical Engineering Invited Colloquium, 2/03 ([invited talk](#))
115. *Characterization and Reliability of Advanced Microelectronic Interconnect Structures*, [A.A. Volinsky](#), Purdue University School of Materials Engineering Invited Colloquium, 1/03 ([invited talk](#))
116. *"Incompressible" Pore Effect on the Mechanical Behavior of Low-K Dielectric Films*, [A.A. Volinsky](#), M.B. Palacio, W.W. Gerberich, Materials Research Society 2002 Fall Meeting, Surface Engineering 2002-Synthesis, Characterization, and Applications, Boston, MA, 12/02
117. *Experiments with In-situ Thin Film Phone Cord Delamination Propagation*, [A.A. Volinsky](#), Materials Research Society 2002 Fall Meeting, Morphological and Compositional Evolution of Thin Films Symposium, Boston, MA, 12/02
118. *Nanomechanical Fracture Testing for Assessing the Durability of Hybrid Microcircuit Films*, N.R. Moody, D.P. Adams, N.Y.C. Yang, A.A. Volinsky, W.W. Gerberich, 3rd European Symposium on Nano-Mechanical Testing, Applications of Nano-Mechanical Testing, Hukelhoven, Germany, 9/02 ([invited](#), [video linked](#))
119. *Nanoindentation Techniques for Assessing Mechanical Reliability at Nanoscale*, [A.A. Volinsky](#), Symposium and Summer School: Nano and Giga Challenges in Microelectronics, Moscow, Russia, 9/02 ([invited talk](#))
120. *Wireless Phones have Phone Cords Attached: Thin Film Phone Cord Delamination Propagation*, [A.A. Volinsky](#), Gordon Research Conference, Thin Film Mechanical Behavior, Waterville, ME, 7/02 ([poster](#))
121. *A Comparison Study of Ti/GaAs Ti/Si Fracture*, [A.A. Volinsky](#), M.L. Kottke, Mechanics of Thin Films and Other Small Structures Symposium, 14th U.S. National Congress of Theoretical and Applied Mechanics, Blacksburg, Virginia, 6/02 ([invited talk](#))
122. *Mechanical Properties, Adhesion and Fracture Toughness of Low-K Dielectric Thin Films for Microelectronic Applications*, [A.A. Volinsky](#), I.S. Adhietty, J.B. Vella, C. Goldberg, W.W. Gerberich, 10th International Congress on Fracture (ICF 10), Honolulu, HI, 12/01 ([invited talk](#))
123. *Effects of Diffusion on the Interfacial Fracture of Multilayer Hybrid Microcircuit Films*, N.R. Moody, D.P. Adams, D. Medlin, [A.A. Volinsky](#), N. Yang, and W.W. Gerberich, 10th International Congress on Fracture (ICF 10), Honolulu, HI, 12/01 ([invited talk](#))
124. *Fiducial Marks as a Measure of Thin Film Crack Arrest Toughness*, [A.A. Volinsky](#), M.L. Kottke, N.R. Moody, I.S. Adhietty, W.W. Gerberich, 10th International Congress on Fracture (ICF 10), Honolulu, HI, 12/01
125. *Residual Stress and Microstructure of Electroplated Cu Film on Different Barrier Layers*, [A.A. Volinsky](#), M. Hauschildt, J.B. Vella, N.V. Edwards, R. Gregory, W.W. Gerberich, Materials Research Society 2001 Fall Meeting, Thin Films-Stresses and Mechanical Properties IX Symposium, Boston, MA, 11/01
126. *The Role of Geometry and Plasticity in Thin, Ductile Film Adhesion*, [A.A. Volinsky](#), the University of Texas Seminar, Austin, 9/01 ([invited seminar](#))
127. *Fracture Toughness and Adhesion of Low-K Dielectric Thin Films*, [A.A. Volinsky](#), J.B. Vella, B.W. Fowler, I.S. Adhietty, W.W. Gerberich, ASME/USCE/SES MMC 2001 Conference, San Diego, CA, 6/01 ([invited talk](#))
128. *The Effects of Composition and Structure on Interfacial Fracture: Chromium Diffusion and the Adhesion of Gold Films*, N.R. Moody, D. Medlin, D.P. Adams, A.A. Volinsky, N. Yang, W.W. Gerberich, Materials Science Department Seminar, University of California, Berkeley, CA, 05/01 ([invited seminar](#))
129. *Adhesion and Fracture Testing of Multilayer Films in Hybrid Microcircuits*, N.R. Moody, D.P. Adams, [A.A. Volinsky](#), and W.W. Gerberich, Department of Materials Science and Engineering, University of Newcastle, Newcastle, United Kingdom, 3/01 ([invited seminar](#))
130. *Finite Element Analysis of the Pre-cracked Line Scratch Test*, [A.A. Volinsky](#), L. Mercado, V. Sarihan, W.W. Gerberich, Materials Research Society 2000 Fall Meeting, Materials Science of Microelectromechanical Systems (MEMS) Devices Symposium, Boston, MA, 11/00 ([poster](#))
131. *Assessing Thin Film Reliability Using Nanoindentation*, N.R. Moody, D.P. Adams, K.A. Peterson, W.M. Clift, P. Hlava, A.A. Volinsky, W.W. Gerberich, Critical Materials and Processes Program-Low Force Testing, ASMI Fall Meeting, St. Louis, MO, 11/00 ([invited talk](#))
132. *Aging of Gold-Chromium Multilayer Films in Hybrid Microcircuits: Techniques for Assessing Thin Film Reliability*, N.R. Moody, D.P. Adams, K.A. Peterson, W.M. Clift, P. Hlava, A.A. Volinsky, W.W. Gerberich, Department Seminar, Department of Mechanics and Materials, Michigan State University, East Lansing, MI, 11/00 ([invited seminar](#))
133. *Microstructure and Mechanical Properties of Electroplated Cu Thin Films*, [A.A. Volinsky](#), J. Vella, I.S. Adhietty, V. Sarihan, L. Mercado, B.H. Yeung, W.W. Gerberich, Materials Research Society 2000 Fall Meeting, Fundamentals of Nanoindentation and Nanotribology II Symposium, Boston, MA, 11/00

134. *Superlayer Indentation Test for Thin Film Adhesion Measurement*, [A.A. Volinsky](#), W.W. Gerberich, Gordon Research Conference, Thin Film Mechanical Behavior, Plymouth, NH, 7/00 (poster)
135. *Thin Film Adhesion Measurement Techniques*, [A.A. Volinsky](#), W.W. Gerberich, Motorola, AZ, 4/00 (invited talk)
136. *Adhesion and Fracture Testing of Gold Chromium Films in Hybrid Microcircuits*, N.R. Moody, [A.A. Volinsky](#), D.P. Adams, M. Kriese, W.W. Gerberich, AVS International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, 3/00 (invited talk)
137. *Superlayer Residual Stress Effect on the Indentation Adhesion Measurement*, [A.A. Volinsky](#), N.R. Moody, W.W. Gerberich, Materials Research Society 1999 Fall Meeting, Thin Films – Stresses and Mechanical Properties VIII Symposium, Boston, MA, 11/99
138. *Indentation-induced Ductile Film Interfacial Debonding*, [A.A. Volinsky](#), W.M. Clift, N.R. Moody, W.W. Gerberich, Materials Research Society 1999 Fall Meeting, Interfacial Engineering for Optimized Properties II Symposium, Boston, MA, 11/99 (poster)
139. *Annealing Effects on Interfacial Fracture of Gold Chromium Films in Hybrid Microcircuits*, N.R. Moody, [A.A. Volinsky](#), D.P. Adams, M. Kriese, W.W. Gerberich, MRS Symposium on Interfacial Engineering for Optimized Properties II, MRS Fall Meeting, Boston, MA, 11/99 (invited talk)
140. *Assessing Reliability of Gold-Chromium Films in Hybrid Microcircuits Using Nanoindentation*, N.R. Moody, [A.A. Volinsky](#), D. Adams, S. Guthrie, W.W. Gerberich, Chemical Engineering and Materials Science Special Seminar, University of Minnesota, Minneapolis, MN, 11/99
141. *Ductile Thin Layers/Brittle Substrate Fracture. Superlayer Test for Practical Adhesion Measurements*, [A.A. Volinsky](#), W.W. Gerberich, Symposium on the Mechanics of Multilayered Materials 1999 IMECE Nashville, TN, 11/99
142. *Indentation-induced Ductile Film Fracture*, [A.A. Volinsky](#), W.W. Gerberich, Sandia National Laboratories, Livermore, CA, 8/99
143. *Macroscopic Modeling of Fine Line Adhesion Tests*, [A.A. Volinsky](#), J.C. Nelson, W.W. Gerberich, Materials Research Society 1999 Spring Meeting, Materials Reliability in Microelectronics Symposium IX, San Francisco, CA, 4/99
144. *Quantitative Modeling and Measurement of Copper Thin Film Adhesion*, [A.A. Volinsky](#), N.I. Tymiak, M.D. Kriese, W.W. Gerberich, J.W. Hutchinson, Materials Research Society 1998 Fall Meeting, Intergranular/Interfacial Fracture Symposium, Boston, MA, 11/98 (invited talk)