Matthew H. Gordon

Education

- Ph.D. Mechanical Engineering, Stanford University, February 1992.
- M.S. Mechanical Engineering, Stanford University, June 1987
- B.S. Mechanical Engineering, Stanford University, June 1986

Registration

- Registered Professional Engineer in the state of Colorado, #45775

Management/Leadership Experience

August 2011 to present, University of Denver

Professor and Chair of Mechanical and Materials Engineering Department

- Duties include hiring open faculty and staff positions, managing the departmental budget (~60k), supervising ~15 faculty and staff, assigning faculty course loads, and working with students, industry, and alumni.
- Successfully oversaw our ABET evaluation in the fall of 2016.
- Oversaw significant increase in freshman enrollment (~100%), ME graduates (~300%), ME research expenditures (~100%), and ME journal paper production (~100%).
- Established strong ties with local industry and the South Metro Denver Chamber to establish co-op program in fall '15. Commitments to date are on the order of $350k
- Worked with faculty to improve curriculum, expanded collaboration with the Daniels College of Business and Sturm College of Law, and encouraged study-abroad (a record 30% of ME students studied abroad in the fall of 2014).
- Worked with Career Services to secure several thousand dollars from industry to establish a program, Career Advantage, to better prepare our students for internships, co-ops, and post-graduate employment.
- Elected to the American Society of Engineering Education (ASEE) Mechanical Engineering Division's Executive Committee in 2016 (4 year rotation culminating in ME Division Chair).
- Appointed Chair of DU's Institutional Biosafety Committee (IBC), effective July, 2014.
- Working with local schools, running a DU Engineering Summer Camp, and modifying curriculum in a freshman course to attract more diverse students.
- Efforts led to three successful promotions to full professor, two successful promotions to associate professor with tenure, two successful University faculty awards, and the hiring of three assistant professors, three teaching professors, and three administrative assistants.

January 2010 to July 2011, University of Arkansas at Fayetteville

Associate Head (January 2010) and Interim Department Head (July 2010) of Mechanical Engineering Department

- Duties include hiring open faculty and staff positions, managing the departmental budget (~2M including faculty/staff salaries), supervising ~20 faculty and staff, assigning faculty course loads, and working with students, industry, and alumni.
- Responsible for writing successful ABET interim review report.
- Repaired relations with Industrial Advisory Board.

- Reestablished popular SAE mini-Baja program.
- Attended workshop on advancement and philanthropy

January 2008 to December 2009, University of Arkansas at Fayetteville
Assistant Director of microEP Graduate Program.

- Duties include organizing and coordinating the annual student qualifying exam, recruiting and admitting students, and advising students.

January 2007 to July 2011, University of Arkansas at Fayetteville
Director of Mechanical Engineering's National Science Foundation (NSF) Research Experience for Undergraduate (REU) Program.

- Duties include promoting program, recruiting and selecting students, enhancing diversity, organizing student activities during the program, and reporting results annually to NSF.

Professional Experience
April 2011 to present, University of Arkansas at Fayetteville and University of Denver
ABET Program Evaluator (PEV).

- Appointed by the American Society of Mechanical Engineers (ASME) to serve as a mechanical engineering program evaluator.
- Evaluated nine national mechanical engineering programs to date.

February 1992 to present, University of Arkansas at Fayetteville and University of Denver
Assistant (1992), Associate (1997), and Professor (2009) of Mechanical Engineering

- Research areas include numerical and experimental plasma physics, chemical and physical vapor deposition, bioengineering, and electronic packaging.
- Supervised to completion 23 MSME theses and 5 PhD dissertations.
- Published 2 book chapter, 34 journal publications, 53 refereed conference proceedings, and 29 non-refereed publications, and gave 28 non-refereed presentations.
- PI or Co-PI on 52 separate proposals totaling just under $6,500,000.
- Supervised two undergraduate students who went on to earn the National Science Foundation's Graduate Research Fellowship.
- ASME Faculty Advisor at both UA and DU; helped reestablish TBP at DU.
- Taught courses to freshman through graduate students covering thermal sciences, numerical methods, finite element analysis, laboratories, senior design, statistical mechanics, economics, ethics, and introduction to engineering.

Awards

- Fred M. Carter Award for high score on the 1995 Arkansas Professional Engineering Exam.
- Outstanding Researcher in Mechanical Engineering, University of Arkansas, 1996; 2008.
- Outstanding Mentor, University of Arkansas, 2008, 2009.
- Appointed 21st Century Endowed Mechanical Engineering Professor, UA, 2009
- Student Life Faculty Advisor of the Year, University of Denver, 2014
- Citizen of the Year, Ritchie School of Engineering and Computer Science, University of Denver, 2015.

Books (2)

M.H. Gordon, "How Do You Know You Have Chosen a Good Path for Yourself?," Chapter 5 in Mechanical Engineering for the Curious: Why Study Mechanical Engineering?", Edited by Kishor Vaidya, 2015.

M. H. Gordon, "The Boltzmann Equation," Chapter 15 in Handbook of Industrial Diamonds and Diamond Films, Edited by M. Prelas, G. Popovici, and L.K. Bigelow, 1997.

Journal Publications (34)

S. Javani, M.H. Gordon, A.N. Azadani, "Biomechanical Properties and Microstructure of Heart Chambers: A Paired Comparison Study in an Ovine Model," Annals of Biomedical Engineering, 2016.

H. Rokadia, M.H. Gordon, and S. Tung, "Carbon Nanotube Alignment using Dielectrophoresis: A Design guideline for realizing future multi-walled carbon nanotube-based devices," IEEE Nanotechnology Magazine, V10-1, 2016.

S.L. Mensah, M.H. Gordon, and H.H. Naseem, "Investigating the plasma parameters of an Ar/O_2 dischage during the sputtering of Al targets in an inverted cylindrical magnetron," Phys. Plasmas, 21, 093510, 2014.

S.L. Mensah, H.H. Naseem, H. Abu-Safe, and M.H. Gordon, "Investigating the role of hydrogen in silicon deposition using an energy-resolved mass spectrometer and a Langmuir probe in an Ar/H2 radio frequency magnetron discharge," Phys. Plasmas, **19**, 073521, 2012.

S.P. Koirala, I. Awaah, S.L. Burkett, and M.H. Gordon, "Correlation of plasma characteristics to etch rate and vial sidewall angle in a deep reactive ion etch system using Langmuir probe and optical emission spectroscopy," J. Vac. Sci. Technol. **A29** (1), Jan/Feb, 2011.

H.H. Abu-Safe, K. Abu-Shagair, and M.H. Gordon, "Effects of substrate positioning for TiAlN films deposited by an inverted cylindrical magnetron sputtering system," Surf. Coat. Technol., **204**, 927, 2009.

C.B. O'Neal, A.P. Malshe, W.F. Schmidt, M.H. Gordon, and W.D. Brown, "Effects of Die Attachment Induced Stress on the Reliability of a Packaged MEMS Device," Journal of Microelectronics and Electronic Packaging, **6**, 164, 2009.

A.N. Cloud, S. Canovic, H.H. Abu-Safe, M.H. Gordon, and M. Halvarsson, "TEM investigation of alpha alumina films deposited at low temperature," Surf. Coat. Technol., **203**, 808, 2008.

A.N. Cloud, S. Kumar, M. Kavdia, H.H. Abu-Safe, and M.H. Gordon, "Protein adsorption on low temperature α-alumina films for surgical instruments," Surf. Coat. Technol., **203**, 913, 2008.

S.P. Koirala, S.L. Mensah, H.H. Abu-Safe, H.A. Naseem, and M.H. Gordon, "Langmuir probe and optical emission studies in a radio frequency (rf) magnetron plasma used for the deposition of hydrogenated amorphous silicon," Surf. Coat. Technol., **203**, 602, 2008.

A. Aryasomayajula, N.X. Randall, M.H. Gordon, and D.G. Bhat, "Tribological and mechanical properties of physical vapor deposited alpha alumina thin film coating," Thin Solid Films, **517**, 819, 2008.

A. Cloud, M.H. Gordon, D.G. Bhat, and A. Aryasomayajula, "Determining Substrate Temperature in PVD Processes by AC Inverted Cylindrical Magnetron Sputtering," Surf. Coat. Technol., **202**, 1564, 2008.

A. Aryasomayajula, S. Canovic, D.G. Bhat, M.H. Gordon, and M. Halvarsson, "Transmission electron microscopy and X-ray diffraction analysis of alumina coatings by alternate-current inverted magnetron-sputtering technique," Thin Solid Films, **516**, 397, 2007.

P. Lipka, S. Mensah, M.H. Gordon, and D.G. Bhat, "Absolute Argon Excited-State Population Measurements from Emission Spectroscopy in an Inverted Cylindrical Magnetron Plasma," Surf. Coat. Technol., **202**, 910, 2007.

S. Pulugurtha, D.G. Bhat, M.H. Gordon, and J. Schultz, "Effect of Substrate Orientation on Film Properties using AC Reactive Magnetron Sputtering," Surf. Coat. Technol., **202**, 755, 2007.

S. Pulugurtha, D.G. Bhat, M.H. Gordon, J. Schultz, M.H. Staia, S.V. Joshi, and S. Govindarajan, "Mechanical and Tribological Properties of Compositionally Graded CrAlN Filma by AC Reactive Magnetron Sputtering," Surf. Coat. Technol., **202**, 1160, 2007.

S.R. Pulugurtha, D.G. Bhat, and M.H. Gordon, "CrNx and $Cr_{1-x}Al_xN$ as Template Films for the Growth of α-Alumina using AC Reactive Magnetron Sputtering," J. Vac. Sci. Technol. **A25**, 1367, 2007.

P. Arunasalam, M.H. Gordon, and L.W. Schaper, "A systematic approach to thinning silicon wafers to the sub-40μm thickness range," Journal of Microelectronics and Electronics Packaging, **3-2**, 86, 2006.

A.D. Srivastava, M.H. Gordon, and D.G. Bhat, "Optical Emission Spectroscopy in an Inverted Cylindrical Magnetron Plasma," Surf. Coat. Technol., **200**, 1346, 2005.

Y. Li, M.H. Gordon, L.A. Roe, K. Hassouni, and T. Grotjohn, "Two-dimensional self-consistent microwave argon plasma simulations with experimental verification," J. Appl. Phys., **94-1**, 85, 2003.

M.H. Gordon, W.F. Schmidt, Q. Qiao, B. Huang, and S.S. Ang, "A Simple Technique for Determining Yield Strength of Thin Films," Experimental Mechanics, **42-3**, 232, 2002.

M.H. Gordon, X. Duten, K. Hassouni, and A. Gicquel, "Energy coupling efficiency of a hydrogen microwave plasma reactor," J. Appl. Phys., **89-3**, 1544, 2001.

M.D. Brown, S.B. Singh, A.P. Malshe, M.H. Gordon, W.F. Schmidt, and W.D. Brown, "Thermal and mechanical analysis of high-power GaAs flip-chips on CVD diamond substrates," Diamond and Related Materials, **8**, 1927, 1999.

M.H. Gordon, G. Ni, W.F. Schmidt, and R.P. Selvam, "A Capillary-Driven Underfill Encapsulation Process," Advanced Packaging, April, **8-4**, 34, 1999.

U.M. Kelkar, M.H. Gordon, L.A. Roe, and Y. Li, "Diagnostics and Modeling in a Pure Argon Plasma: Energy Balance Study," J. Vac. Sci. Technol., **A17(1)**, 125, 1999.

M.H. Gordon, B. Chandran, W.F. Schmidt, and R.K. Ulrich, "Thermal-Mechanical Issues for Diamond-Based MCMs," Advancing Microelectronics, **25-1**, 12,1998.

U.M. Kelkar and M.H Gordon, "The Importance of Electron-Molecule Interactions in Free-Free Continuum Emission for Microwave Discharge CVD," Plasma Chemistry and Plasma Processing, **17**, 315, 1997.

M.H. Gordon, U. Kelkar, and M.C. Johnson, "Numerical Investigation of an Improved Gas and Steam Turbine Seal," Proceedings of The Institution of Mechanical Engineers Part A, Journal of Power and Energy, **210**, 477,1996.

M.H. Gordon and U. Kelkar, "The Role of Two-Step Ionization in Numerical Predictions of Electron Energy Distribution Functions," Phys. Plasmas, **3**, 407, 1996.

A.P. Malshe, S. Jamil, M.H. Gordon, H.A. Naseem, W.D. Brown, and L.W. Schaper, "Diamond for MCMs," Advanced Packaging, Sept-Oct, 50, 1995.

M.H. Gordon and C.H. Kruger, "Temperature and Density Measurements in a Recombining Argon Plasma with Diluent," Plasma Chemistry and Plasma Processing, **13**, 365, 1993.

M.H. Gordon and C.H. Kruger, "Non-Equilibrium Effects of Diluent Addition in a Recombining Argon Plasma," Physics of Fluids B, **5**, 1014, 1993.

T.G. Owano, M.H. Gordon and C.H. Kruger, "Measurements of the Radiation Source Strength in Argon at Temperatures between 5000 and 10000 K," Phys. Fluids B, **2**, 3184, 1990.

C.H. Kruger, T. Owano, and M. Gordon, "Measurements of Nonequilibrium Effects in Thermal Plasmas," Pure and Applied Chemistry, **62**, 1833, 1990.

Refereed Conference Proceedings (53)

BN Roszelle, KK Langenberg, JA Roney, and MH Gordon, "What can DISC and Motivation Profiles Disclose about Student Retention in Engineering?," Proceedings of the 125th ASEE Annual Conference & Exposition, Salt Lake City, UT, June 24-27, 2018

JA Roney, BN Roszelle, MH Gordon, and BS Davidson, "Impact of New FE Test Availability," 124th ASEE Annual Conference & Exposition, Columbus, OH, June 25-28, 2017.

BN Roszelle, MH Gordon, BS Davidson, and P Laz, "Novel Sophomore Assessment Modeled after the FE Exam," Proceedings of the 123rd ASEE Annual Conference & Exposition, New Orleans, LA, June 26-29, 2016.

S Javani, M Abbasi, MH Gordon, AN Azadani, "Passive Biaxial Mechanical Properties of Different Anatomical Regions of Normal Ovine Heart," Biomedical Engineering Society Annual Meeting, Tampa, FL, October 7-10, 2015.

MH Gordon, BS Davidson, CS Lengsfeld, and B Chao, "Providing Students Opportunities to Enroll in Law School Courses," Proceedings of the 122nd ASEE Annual Conference & Exposition, Seattle, WA, June 14-17, 2015.

AJ Cyr, MD Harris, V Kefala, MH Gordon, PJ Rullkoetter, BS Davidson, and KB Shelburne, "Implant Tracking Using a High-Speed Stereo Radiography System," Proceedings of the 7th World Congress of Biomechanics, Boston, MA, July 6-11, 2014.

MH Gordon, BS Davidson, and CS Lengsfeld, "Adding Flexibility and Hands-On Experiences while Minimizing Gaps in the ME Curriculum," Proceedings of the 121st ASEE Annual Conference & Exposition, Indianapolis, IN, June 15-18, 2014.

V Kefala, AJ Cyr, MD Harris, MH Gordon, PJ Rullkoetter, BS Davidson, and KB Shelburne, "Implant Tracking Using a High-Speed Stereo Radiography System," Proceedings of the 4th Annual Regional Meeting of the Rocky Mountain American Society of Biomechanics, Estes Park, CO, April 11-12, 2014.

S. Mensah and M.H. Gordon, "The role of hydrogen in the synthesis of hydrogenated amorphous silicon by magnetron sputtering: Plasma diagnosis," Proceedings of the National Society of Black Physicists Annual Conference, Nashville, TN, February 11-15, 2009.

S.P. Koirala, I.U. Abhulimen, M.H. Gordon, H. Abu-Safe, and S.L. Burkett, "Optical Studies in a Deep Reactive Ion Etching (DRIE) System," Proc. of the 51st Annual SVC Technical Conference, April 19-24, Chicago, IL, 2008.

K.A. Herring, H.H. Abu-Safe, H.A. Naseem, and M.H. Gordon, "Measurement of Absolute Argon Excited State Populations and Electron Energy Distribution Functions in an Ar-a-Si Plamsa," Proc. of the 51st Annual SVC Technical Conference, April 19-24, Chicago, IL, 2008.

S.L. Mensah, H.H. Abu-Safe, H. Naseem, and M.H. Gordon, "Langmuir Probe Investigation of the Effect of Pressure and Hydrogen Concentration in an Ar-H-Si Plasma," Proc. of the 51st Annual SVC Technical Conference, April 19-24, Chicago, IL, 2008.

G.C. Vandross, H.H. Abu-Safe, K.Abu-Shgair, and M.H. Gordon, "TiAlN Films Deposited by AC Reactive Magnetron Sputtering," Proc. of the 51st Annual SVC Technical Conference, April 19-24, Chicago, IL, 2008.

A.N. Cloud, P. Mohanty, H.H. Abu-Safe, and M.H. Gordon, "Low Temperature Alpha Alumina Coating for Biomedical Implant Application," Proc. of the 51st Annual SVC Technical Conference, April 19-24, Chicago, IL, 2008.

M.H. Gordon, "Assessing Student Preparation for Senior Capstone Design Projects," Proc. of the 2008 ASEE Southern Section Annual Conference and Meeting, April 6-8, Memphis, TN, 2008.

S. Mensah and M.H. Gordon, "Investigation of Ar-Excited State Population in an Argon Discharge with the Aid of a Langmuir Probe and a Collisiona-Radiative Model," Proceedings of the National Society of Black Physicists Annual Conference, Arlington, VA, February 19-23, 2008.

H. Wang, A. Aryasomayajula, M. Zou, M.H. Gordon, and D.G. Bhat, "Hardness and frictional properties of alumina coatings by AC inverted magnetron sputtering technique," Proc. Of the STLE/ASME IJTC, October 22-24, San Diego, CA, 2007.

H. Rokadia, S. Tung, and M.H. Gordon, "Characterization of laterally aligned carbon nanotubes formed by ac dielectrophoresis," Proceedings of the 7th IEEE International Conference on Nanotechnology, Hong Kong, August 2-5, 361, 2007.

W.W. Bradley, J.E. Mock, and M.H. Gordon "World-to-Chip Sample Introduction," Proceedings of the 2007 IEEE RegionV Student Conference, Fayetteville, AR, April 20-22, 2007.

S.P. Koirala, M.H. Gordon, L. Cai, S.L. Burkett, and L.W. Schaper, "Optical Emission Spectroscopy in a Reactive Ion Etching System," Proceedings of the 2007 IEEE RegionV Student Conference, Fayetteville, AR, April 20-22, 2007.

J.E. Mock, M.H. Gordon, and W.W. Bradley, "Demonstration of a Flow-Through Micro-PCR in an Annular Pyrex Channel," Proceedings of the 2007 IEEE RegionV Student Conference, Fayetteville, AR, April 20-22, 2007.

D. Boyt, I.U. Abhulimen, M.H. Gordon, S.L. Burkett, and L.W. Schaper, "FEA Power Dissipation and Stress Analysis of 3-D Stack-Up Geometries," Proceedings of the 2007 IEEE RegionV Student Conference, Fayetteville, AR, April 20-22, 2007.

S.P. Koirala, I.U. Abhulimen, S. Mensah, M.H. Gordon, L. Cai, S.L. Burkett, and L.W. Schaper, "Optical Emission Spectroscopy in a Deep Reactive Ion Etching System," Proceedings of the 2007 GSRIC, Tulsa, OK, April 13-14, 2007.

L. Schaper, S. Burkett, M.H. Gordon, L. Cai, J. Patel, T. Lam, I. U. Abhulimen, and T. Rowbotham, "Systems in Miniature: Meeting the Challenges of 3-D VLSI," Proceedings of the Eighth VLSI Packaging Workshop, Kyoto, Japan, December 4-5, 2006.

P. Arunasalam, M.H. Gordon, L.W. Schaper, S.L. Burkett, Z. Rahman, G. Vangara, S. Spiesshoefer, "50μm Wafers with Improved Total Thickness Variation by Means of a Low Cost Modified Reusable Carrier Wafer," Proc. of the 38th Int'l IMAPS Symposium, Philadelphia, PA, Sept. 25-29, 380, 2005.

A. Srivastava, M.H. Gordon, and D.G. Bhat, "Optical Emission Spectroscopy in an Inverted Cylindrical Magnetron Sputtering System," Proceedings of the 3rd Joint ASME Region X/SDPS GSTC, March 31-April 2, Lubbock, TX, 107, 2005.

P. Arunasalam, M.H. Gordon, and L.W. Schaper, "Ultra Thin Wafer Processing for Thru-Silicon-Vias in 3-D Interconnect Technology," Proc. Of the 6th International Conference on Electronics Materials and Packaging, 2004, pp. 423-429.

P. Arunasalam, M.H. Gordon, and L.W. Schaper, "Thermo-Mechanical Analysis of Thru-Silicon-Via in Ultra Thin Wafers for Z-Axis Interconnect Technology," IMAPS Advanced Technology Workshop on Advanced 3D Packaging Innovations and Applications for MCM and System-in Package Tech., Baltimore, MD, 2003.

J. Clendenin, M.H. Gordon, and S. Tung, "Pressure Sensitivity of a Thermal Shear Stress Sensor," Proc. of FEDSM'03 4TH ASME-JSME Joint Fluids Engineering Conference, Honolulu, HI, July 6-11, 2003.

C.B. O'Neal, A.P. Malshe, W.F. Schmidt, M.H. Gordon, R.R. Reynolds, W.D. Brown, W.P. Eaton, and W.M. Miller, "A Study of the Effects of Packaging Induced Stress on the Reliability of the Sandia MEMS Microengine," Proceedings of IPACK2001, July 8-13, Kauai, HI, 1, 2001.

G. Deng, M.H. Gordon, L.A. Roe, A.P. Malshe, and W.F. Schmidt, "Comparison of Laser-Ceramic and Laser-Metal Material Processing," HTD-Vol. 366-5, ASME IMECE Proceedings, 7, 2000.

L Li, B. Huang, Q. Qiao, M.H. Gordon, W.F. Schmidt, and S.S. Ang, "A technique for determining the mechanical behavior and electrical performance of thin films," MEMS-Vol 1, ASME IMECE Proceedings, 545, 1999.

D.W. Nutter, A. Muyshondt, and M.H. Gordon, "Investigation of a Fin and Tube Surface as a Contaminant Sink," IAQ & Energy '98 Proceedings, October 24-27, New Orleans, LA, 207, 1998.

U.M. Kelkar, M.H. Gordon, L.A. Roe, and Y. Li, "Diagnostics and Modeling in a Pure Argon Plasma: Energy Balance Study," AIAA #97-2404, 28th Plasmadynamics/Lasers Conf., June 23-25, Atlanta, GA, 1997.

B. Chandran, W.F. Schmidt, and M.H. Gordon, "Effect of Measured Stress-Strain Solder Data on Die/Substrate Interface Bond Stress for Large CTE Mismatch," EEP-Vol 19-1, ASME InterPACK Meeting Proceedings, 467, 1997.

R. Djakaria, M.H. Gordon, and W.F. Schmidt, "Finite-Element Simulation of Thin-Film Adhesion Strength Testing," EEP-Vol 19-1, ASME InterPACK Meeting Proceedings, 1251, 1997.

B. Chandran, W.F. Schmidt, M.H. Gordon, and R. Djakaria, "The Determination and Utilization of AuSn Solder Creep Properties to Bond GaAs Dice to Diamond Substrates," EEP-Vol 18, ASME Winter Annual Meeting Proceedings, 61, 1996.

B. Chandran, M.H. Gordon, and W.F. Schmidt, "Comparison of CVD Diamond to other Substrate Materials for Thermal Management," Proceedings of the InterSociety Conference on Thermal Phenomena in Electronic Systems, May 29-June 1, Orlando, FL, 226, 1996.

B. Chandran, W.F. Schmidt, and M.H. Gordon, "A Novel Bonding Technique to Bond CTE Mismatched Devices," Proceedings of the 46th Electronic Component and Technology Conference, May 28-31, Orlando, FL, 1151, 1996.

U. Kelkar and M.H. Gordon, "Self-Consistent Modeling of Electron Energy Distribution Functions for Microwave CVD Reactors," invited paper, CVD-XIII, ECS Proceedings, **96-5**, 75, 1996.

B. Chandran, W.F. Schmidt, and M.H. Gordon, "Effect of Die/Substrate Thickness, Substrate Material and Cooling Mechanism on the Thermal Performance of Electronic Packages," Proceedings of the First Pan Pacific Microelectronics Symposium, February 6-8, Honolulu, Hawaii, 229, 1996.

M.H. Gordon, M.B. Stewart, B. King, J.C. Balda, and K.J. Olejniczak, "Numerical Optimization of a Heat Sink Used for Electric Motor Drives," Proceedings of IEEE Industry Applications Conference Vol. 2, 967, 1995.

M.H. Gordon and U. Kelkar, "Nonequilibrium Effects in a Microwave Plasma," Electrochemical Society Proceedings, **95-4**, 291, 1995.

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M.H. Gordon, S. Jamil, H.A. Naseem, W.D. Brown, and A.P. Malshe, "Part I - Thermal Management Analysis: Diamond for MCMs," HTD-Vol 319/EEP-Vol 15, ASME Winter Annual Meeting Proceedings, 145, 1995.

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M.H. Gordon, M. Touzelbaev, M. Xiao, and R.C. Goforth, "Numerical Simulation of Diamond Film Ablation under Irradiation by a Laser Beam," HTD-Vol 289, ASME Winter Annual Meeting Proceedings, 73, 1994.

B. Chandran, M.H. Gordon, W.F. Schmidt, and R.C. Goforth, "Design Parameters for using GaAs Dice on Synthetic Diamond Substrates," AMD-Vol 195, ASME Winter Annual Meeting Proceedings, 29, 1994.

J.M. Conrad, D.L. Andrews, D. Butler, W. Casady, M. Coleman, and M.H. Gordon, "Introduction to Engineering Concepts for High School Teachers and Students," Proceedings of the 1993 Frontiers in Education Conference, Engineering Education: Renewing America's Technology, Washington D.C., November, 1, 1993.

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C. Laux, T. Owano, M. Gordon, and C.H. Kruger, "Measurements of the Volumetric Radiative Source Strength of Air for Temperatures between 5,000 and 7,500 K," AIAA/ASME 5th Joint Thermophysics and Heat Transfer Conference, June 18-20, 1990.

Non-refereed publications (29)

M.H. Gordon, S.R. Pulugurtha, A. Aryasomayajula, A. Cloud, and H. Abu-Safe, "Development of a Crystalline Alumina Coating for Cutting Tools using a Novel Inverted Cylindrical Magnetron Sputtering Technique," Proceedings of the 2008 NSF Engineering Research and innovations Conference, Knoxville, TN, January 7-10, 2008.

L. Schaper, S. Burkett, M.H. Gordon, L. Cai, Y. Liu, G. Jampana, and I.U. Abhulimen, "Integrated System Development for 3-D VLSI," Proceedings of the 57th Electronics Components & Technology Conference, May 29-June 1, Reno, NV, 853 (2007).

J. Lapiro, D.G. Bhat, S. Pulugurtha, and M.H. Gordon, "The Effects of Substrate Orientation in a Physical Vapor Deposition Magnetron Sputtering System on the Chromium-Nitride Coating Microstructure," University of Arkansas/SESRE Conference, Fayetteville, AR, August 4, 2006.

M.H. Gordon, D.G. Bhat, S. Pulugurtha, and A. Aryasomayajula, "Development of Crystalline Alumina Coatings for Cutting Tools by a Novel Inverted Cylindrical Magnetron Sputtering Technique," NSF Design, Service, and Manufacturing Grantees and Research Conference, St. Louis, MO, July 24-27, 2006.

H. Warren, A. Srivastava, D.G. Bhat, and M.H. Gordon, "Optical Diagnostics of a Magnetron Sputtering System," University of Arkansas/SESRE Conference, Fayetteville, AR, August 5, 2005.

C. Melick, A. Khanna, D.G. Bhat, and M.H. Gordon, "Low Temperature Deposition of α – Phase Alumina coatings by Magnetron Sputtering onto Templates," University of Arkansas/SESRE Conference, Fayetteville, AR, August 5, 2005.

D.G. Bhat, M.H. Gordon, A. Srivastava, and A. Khanna, "Development of Crystalline Alumina Coatings for Cutting Tools by a Novel Inverted Cylindrical Magnetron Sputtering Process," NSF Design, Service and Manufacturing Grantees and Research Conference, Scottsdale, AZ, January 3-6, 2005.

P. Arunasalam, M. H. Gordon, and L. W. Schaper, "Thermo-Mechanical Analysis of Thru-Silicon-Vias Operating at Cryogenic Temperature", 3rd Annual Technical Summit Conference, University of Arkansas, 2003.

C. Cox, W.F. Schmidt, M.H. Gordon, W. Marsh, G. Bates, and M. Lucas, "Mechanical Considerations of Shin-Etsu Elastomer as a Z-Axis Interconnect," ASME IMECE Proceedings IMECE2001/EPP-24736, Volume 2, 1, 2001.

C. Cox, W.F. Schmidt, M.H. Gordon, W. Marsh, G. Bates, M. Lucas, and P. Sangree, "Investigation of shin-etsu elastomer as a z-axiz interconnect," Proceedings of the ASME Region X Graduate Student Technical Conference, March 31, Tulsa, OK, 33, 2001.

B. Huang, S.S. Ang, E.V. Porter, F. Barlow, Q. Qiao, M.H. Gordon, W.F. Schmidt, W.D. Brown, and A. Elshabini, "A Micromachined Ball Grid Array Test Socket for Fine-Pitch Interconnect," Proceedings of the 2000 International Symposium on Microelectronics, Sept. 20-22, Boston, MA, 172, 2000.

Q. Qiao, M.H. Gordon, W.F. Schmidt, S.S. Ang, and Biao Huang, "Experimental and Numerical Determination of Forces for Thin Film Beam Structures," Proceedings of the SEM IX International Congress on Experimental Mechanics, June 5-8, Orlando, FL, 966, 2000.

Q. Qiao, M.H. Gordon, W.F. Schmidt, Li Li, S.S. Ang, and Biao Huang, "Development of a Wafer-Level Burn-In Test Socket for Fine-Pitch BGA Interconnect," Proceedings of the 50th Electronics Components & Technology Conference, May 21-24, Las Vegas, NV, 1147, 2000.

K. Clark, M.H. Gordon, R.K. Ulrich, and P. Baker, "Thermal and Economic Analysis of an RF Power Transistor Mounted on CVD Diamond Heat Spreaders," Proceedings of the International Systems Packaging Symposium, January 11-13, San Diego, CA, 13, 1999.

Q. Lu, K.V. Lohrman, M.H. Gordon, W.F. Schmidt, R.R. Reynolds, R.P. Selvam, and Y. Peng, "An Optimization of the Cooling Process Developed for a Die Attach Package with Non-Linear Properties," Proceedings of the International Systems Packaging Symposium, January 11-13, San Diego, CA, 146, 1999.

Y. Peng, R.P. Selvam, W.F. Schmidt, M.H. Gordon, K.V. Lohrman, and R.R. Reynolds, "Nonlinear Finite Element Modeling of Brazing a Die to a Diamond Substrate," 1998 Proceedings on Internationl Symposium on Microelectronics, November 1-4, San Diego, CA, 485, 1998.

K. Clark, R.K. Ulrich, M.H. Gordon, and M. Leftwich, "Finite Element Thermal Model for High Power Transients in Microelectronics with CVD Diamond Heat Spreaders," Proceedings of the 48th Electronics Components & Technology Conference, May 25-28, Seattle, WA, 1455, 1998.

G. Ni, M.H. Gordon, W.F. Schmidt, and R.P. Selvam, "Flow Properties of Liquid Underfill Encapsulations and Underfill Process Considerations,"Proceedings of the 48th Electronics Components & Technology Conference, May 25-28, Seattle, WA, 101, 1998.

M.D. Brown, A.P. Malshe, M.H. Gordon, R.K. Ulrich, W.F. Schmidt, and W.D. Brown, "Comparison FEA Study of the Thermal Performance of Diamond Substrates in Face-Up and Flic-Chip Bonded Electronic Packaging Applications," Proceedings of the International Systems Packaging Symposium, December 2-5, San Diego, CA, 129, 1997.

M.H. Gordon, L.A. Roe, U.M. Kelkar, and Y. Li, "Diamond Film Deposition and Isotope Effect," Proceedings of ITIT International Symposium on New Technologies from Marine-Sphere, October 8-10, Takamatsu, Japan, 59, 1997.

G. Ni, M.H. Gordon, W.F. Schmidt, and A. Muyshondt, "Experimental and Numerical Study of Underfill Encapsulation of Flip-Chips Using Conductive Epoxy Polymer Bumps," Proceedings of the 47th Electronics Components & Technology Conference, May 18-21, San Jose, CA, 859, 1997.

R. Djakaria, B.I. Chandran, M.H. Gordon, W.F. Schmidt, and T. Lenihan, "Determination of Young's Modulus of Thin Films used in Embedded Passive Devices," Proceedings of the 47th Electronics Components & Technology Conference, May 18-21, San Jose, CA, 745, 1997.

M.H. Gordon, L.A. Roe, J.A. Johnson, E.L. Callens, and A.P. Malshe, "An Experimental and Numerical Investigation of Plasma Effects During Laser Processing of Diamond," Proceedings of the Laser Institute of America, **81B**, October 14-17, Detroit, MI, 1, 1996.

M.H. Gordon, R. Djakaria, B. Chandran, W.F. Schmidt, and R.K. Ulrich, "Thermal Management Limitations of Diamond Based MCMs," Proceedings of the 1996 International Electronics Packaging Conference, 307, 1996.

R.K. Ulrich, A.P. Malshe, M.H. Gordon, J. Palmer, and J. Li, "Finite-Element Modeling of a Hot Filament CVD Diamond Deposition Reactor Optimized for Large Area Deposition," Proceedings of the Applied Diamond Conference, 673, 1995.

J. Johnson, A.P. Malshe, E. Callens, S. Jamil, and M.H. Gordon, "Laser Processing of Diamond Substrates for Multichip Modules: Part I," Proceedings of the Applied Diamond Conference, 279, 1995.

S. Jamil, M.H. Gordon, G.J. Salamo, H.A. Naseem, W.D. Brown, and A.P. Malshe, "Laser Processing of Diamond Substrates for Multichip Modules: Part II," Proceedings of the Applied Diamond Conference, 283, 1995.

B. Chandran, W.F. Schmidt, and M.H. Gordon, "Temperature and Stress Issues in Devices with Diamond Substrates during Manufacturing and Operation," Proc. of the Applied Diamond Conference, 509, 1995.

M.H. Gordon and C.H. Kruger, "Electronic Quenching of Argon Excited States in a Non-Equilibrium Plasma at Atmospheric Pressure," 10th International Symposium on Plasma Chemistry, August 4-9, 1991.

Non-refereed presentations (28)

J. Mall, T. Kostenbauer, S. Hinkin, M.H. Gordon, R. Damas, and J. Martinez, “Creative Employer and University Programming: Creating Workforce Ready Internship Candidates,” Mountain Pacific Association of Colleges and Employers (MPACE) Conference, Anaheim, CA, December 9-December 11 (2015).

H. Abu-Safe, K. Abu-Shgair, and M.H. Gordon, “Effects of substrate radial positioning for TiAlN films deposited by an inverted cylindrical magnetron sputtering system,” The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 26-April 30 (2010).

A. Barito and M.H. Gordon, “Low-temperature deposition of mixed-phase alpha alumina by physical vapor deposition without a chrome template layer,” The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 26-April 30 (2010).

J. Mehta, R. Kilaru, and M.H. Gordon, “Hysteresis effects on PVD alumina using an inverted cylindrical AC magnetron sputtering system,” The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 26-April 30 (2010).

S.L. Mensah and M.H. Gordon, "Characterizing an inverted cylindrical magnetron during aluminum and alumina depositions: ion energy distribution and Langmuir probe studies," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 26-April 30 (2010).

S.L. Mensah, H.H. Abu-Safe, H.A. Naseem, and M.H. Gordon, "Ion energy distribution studies of ions and radical in Ar/H2 radio frequency magnetron discharge during a-Si:H deposition using energy-resolved mass spectrometry," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 26-April 30 (2010).

A.Barito, H.H. Abu-Safe, D.E. Spearot, and M.H. Gordon, "Low-Temperature Deposition of Alpha Alumina by Physical Vapor Deposition without a Chrome Template Layer," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

S.L. Mensah, H.H. Abu-Safe, H.A. Naseem, and M.H. Gordon, "Investigation of the Role of Hydrogen in Silicon Deposition Using and Energy-Resolved Mass Spectrometer in an Ar/H2 Radio Frequency Magnetron Discharge," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

S.L. Mensah, H.H. Abu-Safe, and M.H. Gordon, "Ion Energy Distribution and Langmuir Probe Studies in an Ar/O2 Discharge During Al2O3 Deposition," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

S.P. Koirala, M.H. Gordon, and S.L. Burkett, "Experimental and Numerical Plasma Characterization in a Deep Reactive Ion Etch System," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

A.C. Ruiz, M. Kavdia, S. Kumar, M.H. Gordon, H.H. Abu-Safe, and S. Davis, "Effects of Sterilization and Heat Treatment on Alumina Coated Surgical Instruments," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

M.T. Montgomery, P. Mohanty, H.H. Abu-Safe, and M.H. Gordon, "Tribology and Corrosion Behavior of Alpha Alumina-coated Ti-6Al-4V for Surgical Implantation," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 27-May 1 (2009).

B. Newton, H.H. Abu-Safe, H.H. Naseem, M.H. Gordon, and S. El-Ghazaly, "Electron-beam assisted aluminum-induced crystallization for the growth of crystalline nanodots in amorphous silicon thin films," MRS Spring Meeting, San Francisco, CA, March 24-28, 2008.

A. Aryasomayajula, A.N. Cloud, M.H. Gordon, D.G. Bhat, and A.T. Santhanam, "Machining Results on Alpha Alumina Coatings by AC Inverted Magnetron Sputtering," European Congress on Advanced Materials and Processes, Nuremberg, Germany, September 10-13 (2007).

A. Aryasomayajula, D.G. Bhat, M.H. Gordon, S. Singh, and R. Kishore, "Low Temperature Alumina Coatings by AC Inverted Magnetron," The International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, April 23-27 (2007).

C.B. O'Neal, A.P. Malshe, W.F. Schmidt, R.R. Reynolds, M.H. Gordon, and W.D. Brown, "Investigation of Effects of Die Attachment on MEMS Functionality: Lessons Learned," IMAPS Advanced Technology Workshop on Packaging and Integration of MEMS Microsystems, Orlando, FL, November 10-12, 2000.

Y. Li, M.H. Gordon, L.A. Roe, K. Hassouni, and T. Grotjohn, "Absorption Measurements of 4s State Number Density for a Microwave Argon Plasma," 52nd Annual GEC, Norfolk, VA, October 4-7, 1999.

K.V. Lohrman, M.H. Gordon, W.F. Schmidt, R.R. Reynolds, R.P. Selvam, and Y. Peng, "Finite Element Modeling of an Alloy 42 Lead Attach-Cusil Braze-CVD Diamond Package Incorporating Non-Linear Material Properties, Creep, and Plasticity," ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, November 15-20, 1998.

Y. Li, U. M. Kelkar, M. H. Gordon, and L. A. Roe, "A Global Reactor Model for Pure Argon Microwave Plasmas," 50th Annual GEC, Madison, WI, October 6-9, 1997.

U.M. Kelkar and M.H. Gordon, "Determination of Electron Density and Temperature using Optical Emission Spectroscopy (OES) and Self-Consistent Modeling in a Nonequilibrium Microwave Plasma," 43rd National Symposium of the American Vacuum Society, October 14-18, 1996.

U.M. Kelkar, M.H. Gordon, and L.A. Roe, "A Self-Consistent Zero-Dimensional Numerical Description of a Nonequilibrium Hydrogen Plasma," 49th Annual Gaseous Electronics Conference, October 20-24, 1996.

W.F. Schmidt, B. Chandran, and M.H. Gordon, "Die Attachment to Heat Spreaders with Large CTE Mismatch," presented at ISHM Advanced Technology Workshop, Advancements in Design, Materials and Processes for Thermal Spreaders and Heat Sinks, April 19-21, Beaver Creek, CO, 1996.

U.M. Kelkar and M.H. Gordon, "Practical Applications for Optical Emission Spectroscopy in a Microwave Plasma," 48th Annual Gaseous Electronics Conference, October 9-13, 1995.

M.H. Gordon and U. Kelkar, "Population and Temperature Measurements in a Nonequilibrium Microwave Plasma," 47th Annual Gaseous Electronics Conference, October 18-21, 1994.

A. Malshe, Z. Lu, M. Xiao, G. Salamo, H. Naseem, M.H. Gordon, and M. Touzelbaev, "Laser-Induced Processing of CVD-Diamond Films for MCM Applications," General Meeting of the American Physical Society, San Jose, CA, March 21-25, 1994.

M.H. Gordon and C.H. Kruger, "Electronic Quenching Effects of Atom-Molecule Interactions in a Non-Equilibrium Plasma at Atmospheric Pressure," 43rd Annual Gaseous Electronics Conference, October 16-19, 1990.

T.G. Owano, M.H. Gordon, and C.H. Kruger, "Temperature Measurements in a Non-Equilibrium Thermal Plasma," 42nd Annual Gaseous Electronics Conference, October 17-20, 1989.

M.H. Gordon, T.G. Owano, C.H. Kruger, and M.A. Cappelli, "Diamond Synthesis in a 50 kW Inductively Coupled Atmospheric Pressure Plasma," 42nd Annual Gaseous Electronics Conference, October 17-20, 1989.

Grants Obtained as PI or Co-PI

Below are 52 grants totaling $6,400,000 of which 32 are federal ($5,700,000), 9 are state ($97,900), 8 are industry ($584,900), and 3 are internal ($7,950). Dr. Gordon is the Principal Investigator (PI) on 25 of these grants ($1,639,000).

NIST SURF Fellowship 2012, National Institute of Standards and Technology (Washington, DC), M.H. Gordon (PI), $9,000, 6/12 – 9/12.

Development of Plasma-Enhanced Ultra-High-Vacuum Chemical-Vapor-Deposition Machine for Novel Sn Based Group-IV Optoelectronic Devices, ONR (Washington, DC), S.Q. Yu (PI), D.E. Spearot, H.A. Naseem, and M.H. Gordon, $52,000, 6/10 – 6/11

REU Site – Summer Internships in Nanomaterials and Nanomechanics, NSF (Washington, DC), M.H. Gordon (PI), J.J. Rencis, and U.C. Wejinya, $353,817, 5/10 – 4/13

Advanced Lubrication for Energy Efficiency, Durability & Lower Maintenance, ONR (Washington, DC), M.H. Gordon (PI) and A.P. Malshe, $61,261, 2/10 – 2/11

Student Undergraduate Research Fellowship (SURF), Arkansas Department of Higher Education (Little Rock, AR), M.H. Gordon (PI), $3,900, 1/10 – 12/10

A Comparison of Physical Vapor Depositino Alumina Films Deposited Using AC and Pulsed DC Power Supplies, University of Arkansas' Honor's College (Fayetteville, AR), M.H. Gordon (PI) and Kristin Gangluff, $3,900, 1/09-12/09

Student Undergraduate Research Fellowship (SURF), Arkansas Department of Higher Education (Little Rock, AR), M.H. Gordon (PI), $2,750, 1/10 – 5/10

Development of a Technique for Measuring the Thickness of Alpha Phase Alumina, University of Arkansas' Honor's College (Fayetteville, AR), M.H. Gordon (PI) and Jay Mehta, $3,900, 1/09-12/09

Student Undergraduate Research Fellowship (SURF), Arkansas Department of Higher Education (Little Rock, AR), M.H. Gordon (PI), $3,900, 1/09 – 10/09

Deposition of Low Temperature Alumina Coatings for Biomedical Application, ABI Research Committee (Fayetteville, AR), M.H. Gordon (PI) and M. Kavdia, $47,200, 7/08 – 5/09

Understanding Integrated Cooling for Superconducting Electronics MCMs, ONR (Washington, DC), A.P. Malshe (PI) and M.H. Gordon, $405,000, 1/08 – 1/12

Alpha Phase Crystalline Aluminum Oxide Coated at Temperatures Below 500C, Isoflux Inc. (Rochester, NY), M.H. Gordon (PI), $90,000, 1/08 – 12/08

Measurement of Absolute Argon Excited State Populations and Electron Energy Distribution Functions in an Ar-a-Si Plasma, University of Arkansas' Honor's College (Fayetteville, AR), M.H. Gordon (PI) and Katherine Herring, $2,650, 1/08 – 5/08

Numerical Thermal-Fluid Analysis of a Novel 3D Electronic Package using Thru-Silicon Vias, University of Arkansas' Honor's College (Fayetteville, AR), M.H. Gordon (PI) and Aron Meyer, $2,650, 1/08 – 5/08

Low Temperature Alpha Alumina Coatings for Bio-medical Applications, University of Arkansas' Honor's College (Fayetteville, AR), M.H. Gordon (PI) and Andy Cloud, $2,650, 1/08 – 5/08

3D Packaging Technology for High Speed RF Communication, AFRL (Washington, DC), S. Burkett (PI), L.W. Schaper, and M.H. Gordon, $350,000, 7/07 – 6/08

REU Site in Nanomaterials and Nanomechanics, NSF (Washington, DC), M.H. Gordon (PI) and J.J. Rencis, $247,886, 2/07 – 1/10

GOALI: Development of a PVD Crystalline Alumina Coating for Cutting Tools by a Novel Inverted Cylindrical Magnetron Sputtering Process – International Supplement, NSF (Washington, DC), M.H. Gordon (PI), $19,975, 2/07 – 5/07

Student Undergraduate Research Fellowship (SURF), Arkansas Department of Higher Education (Little Rock, AR), M.H. Gordon (PI), $3,900, 1/07 – 5/07

US-UK Planning Visit - Collaborative Plasma Diagnostic Research, Applications and Undergraduate Educational Curriculum Development, NSF (Washington, DC), M.H. Gordon (PI), $4,521, 11/06 – 12/07

GOALI: Development of a PVD Crystalline Alumina Coating for Cutting Tools by a Novel Inverted Cylindrical Magnetron Sputtering Process – REU Supplement, NSF (Washington, DC), M.H. Gordon (PI), $12,000, 11/06 – 5/07

Ocean Optics Educational Grant, Ocean Optics, Inc., M.H Gordon (PI), $1,000, 6/06- 12/06

3D Packaging Technology for High Speed RF Communication, AFRL (Washington, DC), S. Burkett (PI), L.W. Schaper, and M.H. Gordon, $520,000, 9/06 – 6/07

MRI: Acquisition of a Comprehensive Plasma Diagnostic System for Research and Education, NSF (Washington, DC), M.H. Gordon (PI), L.W. Schaper, I. Pinto, and S. Tung, $258,292, 9/06-8/09

Multiscale Coarse-Grained Modeling with Experimental Verification of DNA-Carbon Nanotube Complexes, NSF (Washington, DC), S. Zhang (PI), S. Tung, and M.H. Gordon, $249,970, 8/06-7/10

User friendly sample introduction for point of care diagnostics, NSF/SBIR sub-contracted Grant (Washington, DC), M.H. Gordon (PI), $30,000, 1/06 – 8/06

3D Packaging Technology for High Speed RF Communication, AFRL (Washington, DC), S. Burkett (PI), L.W. Schaper, and M.H. Gordon, $480,000, 5/05 – 9/06

User friendly sample introduction for point of care diagnostics, NSF/SBIR sub-contracted Grant (Washington, DC), M.H. Gordon (PI), $7,000, 1/05 – 5/05

3D Packaging Technology for High Speed RF Communication, AFRL (Washington, DC), S. Burkett (PI), L.W. Schaper, and M.H. Gordon, $518,000, 5/04-5/05

GOALI: Development of a PVD Crystalline Alumina Coating for Cutting Tools by a Novel Inverted Cylindrical Magnetron Sputtering Process, NSF (Washington, DC), M.H. Gordon (PI), D.G. Bhat, and A.T. Santhanam, $432,846, 6/04 – 5/07

Exploratory Study of Imbedded Carbon Nanotubes to Improve Thermal Performance of Flexible Electronics Packages, NSF (Washington, DC), S. Tung (PI), D. Nutter, and M.H. Gordon, $89,878, 5/03 – 5/04

Diamond-Based MCMs, DARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $15,000 (my part), 1/03 – 12/03

Diamond-Based MCMs, DARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $30,000 (my part), 1/02 – 12/02

Diamond-Based MCMs, DARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $55,000 (my part), 1/01 – 12/01

GOALI: Novel Surface Engineering Methodology to Anneal the Surface Defects Generated During Grinding for S-N Ceramic Components for Heavy Duty Equipment, NSF (Washington, DC), A.P. Malshe (PI), P. McCluskey, S. Batzer, S. Yedave, M.H. Gordon, $274,999, 9/00 – 8/03

Diamond-Based MCMs, DARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $133,000 (my part), 1/00 – 12/00

Systematic Development and Testing for Reliable sm-MEMS Devices, NSF (Washington, DC), A.P. Malshe (PI) and M. H. Gordon, $217,734, 6/99 – 5/02

Diamond-Based MCMs, DARPA (Washington, DC)
Investigators: L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon
$160,000 (my part), 1/99 – 12/99

Diamond-Based MCMs, ARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $88,000 (my part), 1/98 – 12/98

A Novel Process for Reactive Laser Machining of CVDD Ceramic, NSF (Washington, DC), A.P. Malshe (PI) and M. H. Gordon, $245,616, 8/97 – 7/00

A Study of Behavior of Inflatable Structures Project Initiation, NASA (Washington, DC), L.A. Roe (PI), R.R. Reynolds, and M.H. Gordon, $54,988, 6/97 – 5/98

Diamond-Based MCMs, ARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $185,000 (my part), 1/97 – 12/97

Diamond for Thermal Management of Electronic Packages, 3M (Minneapolis, MN), A.P. Malshe (PI) and M. H. Gordon, $250,000, 9/96 – 8/99

Diamond-Based MCMs, ARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $80,000 (my part), 1/96 – 12/96

Cost Effective Solutions of Particular Difficulties Associated with Adjustable Speed Drives, Baldor Motor and Drives (Fort Smith, AR), J. Balda (PI) and M. H. Gordon, $60,200, 9/95 – 8/97

Heat Sink Design, Evaluation, and Optimization, Baldor Motor and Drives (Fort Smith, AR), M. H. Gordon (PI) and J. Balda, $14,331, 8/95 – 5/96

Diamond-Based MCMs, ARPA (Washington, DC), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $69,000 (my part), 1/95 – 12/95

Laser Drilling of Diamond for Application to Multichip Modules, ASTA (Little Rock, AR), M. H. Gordon (PI), $22,269, 1/95 – 12/95

MCM Applications involving Diamond, Norton Diamond Film (San Jose, CA), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $98,000 (my part), 1/94 – 12/94

Advanced Manufacturing Technology Laboratory, Sun Microsystems (San Jose, CA), R. Goforth (PI), C. Goforth, and M. H. Gordon, $59,495, 12/93 – 11/94

MCM Applications involving Diamond, Norton Diamond Film (San Jose, CA), L.W. Schaper (PI), W.D. Brown, S. Ang, H. Naseem, R. Ulrich, G. Salamo, and M. H. Gordon, $11,900 (my part), 1/93 – 12/93

Investigative Study of Refueling Stations for Compressed Natural Gas Driven Vehicles, Arkansas State Highway and Transportation Department, (Little Rock, AR), M. H. Gordon (PI), $6,123, 12/92 – 5/93

In addition to the above funded proposals, Dr. Gordon has submitted—as PI or co-PI—more than 100 proposals requesting research funds of over 50 million dollars.