

Curriculum Vitae

Notarization. I have read the following and certify that this *curriculum vitae* is a current and accurate statement of my professional record.

Signature _____ (signature not required for Intake-CV) Date _____

- **Please organize your CV using the headings and sub-headings in this template.**
- **In general, do not list a work or activity more than once.**
- **Certain sections with numerous sub-categories include a special sub-category for Historical data in which you can group, for convenience, all items from 10+ years ago.**

I. Personal Information

I.A. Personal Information

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I.B. Academic Appointments at UMD

- **1990-1993 Professor**, Department of Mechanical Engineering, University of Maryland
- **1993-2003 Professor and Chairman** Department of Materials and Nuclear Engineering, University of Maryland, College Park.
- **2004-2007 Professor**, University of Maryland and President of the Federation of Materials Societies
- **Present Professor** of Materials Science, Professor of Mechanical Engineering
- **Professor** of Reliability Engineering and Director Reliability Engineering

I.C. Administrative Appointments at UMD

- **1993 to 2003 Chairman**
Department of Materials and Nuclear Engineering, University of Maryland, College Park.

I.D. Other Employment

- **2002-05 Director** of NSF University-Industry Cooperative Research Center in Optoelectronic Devices Interconnects and Packaging (COEDIP)
- **1997-2002 Director** of a University-NASA Joint Center of LIDAR Technology research
- **1989-90 Professor**, Department of Electrical and Computer Engineering, Rutgers University
- **1985-89 Branch Head**, Surface Physics Branch Electronics Science and Technology Division, Naval Research Laboratory, Washington DC.

- **1985-90 Adjunct Professor**, University of Crete and Research Center Of Crete Greece and Director of Microelectronics Research Group at the Institute for the Electronic Structure and Lasers (FORTH), as a Fulbright Scholar, 1985-87
- **1976-85 Section Head**, Advanced Semiconductor Technology and Reliability Section Electronics Science and Technology Division, Naval Research Laboratory.
- **1971-76 Researcher** in Materials Science Branch Electronics Technology Division, Naval Research Laboratory and Materials Engineer, NSWC, Dahlgren Va

I.E. Educational Background

- **1967 B.A. Physics**, Columbia University, New York, NY
- **1971 Ph.D. Materials Science**, University of Pennsylvania, Philadelphia, PA

II. Research, Scholarly and Creative Activities

For each of the categories listed below follow these guidelines:

- *List published works first, in either chronological order or its inverse, followed (or preceded) by works not yet published but accepted for publication.*
- *If pre-print electronic publication (epub) exists, indicate and include URL and anticipated date of print publication.*
- *Submitted works under review or in progress should be listed in section II.L.*
- *Include page numbers as part of a complete citation for publications.*
- *Use the appropriate sub-headings for authored vs. edited works and between refereed vs. non-refereed outlets.*
- *All authors should be listed in the order they appear on the publication.*
- *When the work is a product of a large group (more than 10 authors), not all authors need be listed. As an example, the first three, the last three, and the individual him/herself (including his/her place in the total author list) may be listed.*

II.A. Books (include full citation information and ISBN)

II.A.1. Books Authored (specify original or revised edition)

1. Reliability of Analogue Microwave Integrated Circuits
Published by Reliability Information Analysis Center (RIAC), December 2006
2. Reliability of High Temperature Electronics, second edition
Published by Reliability Information Analysis Center (RIAC), December 2006
3. Photonic Materials, Devices and Reliability, second edition
Published by RIAC, December 2006
4. Reliability of GaAs Monolithic Integrated Circuits
Published by John Wiley and Sons, October 1992, second edition 1995.
5. Electromigration and Related Failure Mechanisms
Published by John Wiley, December 1994.
6. Integrating Reliability into Microcircuit Manufacturing
Published by John Wiley, 1994.

II.D. Published Conference Proceedings

II.D.4. Other

ARCHIVAL PUBLICATIONS and REVIEWED CONFERENCE PROCEEDINGS

1. Aris Christou, P. McCuskey and A. Dasgupta, “ Physics of Failure and Reliability of Power Electronics Devices”, p. 1926, Proceedings of 224th ECS Meeting, 2013 The Electrochemical Society
2. T.J. Anderson, K.D. Hobart, J.D. Greenlee, D.I. Shahin, A.D. Koehler, E.A. Imhoff, R.L. Myers-Ward, A. Christou, F.J. Kub, “UV and EUV Detectors Based on the Graphene/SiC Heterojunction”, Submitted to Electronic Letters, 2014.
3. A. Christou, Krishna Shenai and Dimitri Pavlidis, “Crystal Defects in Wide Bandgap Semiconductors and Effects on Device Performance,” Proceedings WOCSDICE, June 2014
4. David Shahin, and A. Christou, “GaN/ Si(111) Device Defects and Degradation Mechanisms,” ECS Transactions, 64(7) 203-211 (2014).
5. Krishna Shenai, Aris Christou, Michael Dudley, Balaji Ragothamachar and Rajendra Singh, “Crystal Defects in Wide Bandgap Semiconductors,” ECS Transactions, 61 (4) 283-293 (2014).
6. Gary Paradee, Tom Martin, Aris Christou, “Fatigue Properties of Graphene on Flexible Substrates”, IEEE Transactions on Device and Materials Reliability, December 2014
7. Gary Paradee, Tom Martin and Aris Christou, “Fatigue Properties of Uniform and Patterned ITO on Flexible Substrates,” J. Microelectronics Reliability, Accepted 2014 and to be published 2015
8. Gary Paradee, Eric Bailey and A. Christou, “Stress relaxation behavior and low cycle fatigue behavior of bulk SAC 305,” J. Mater Sci Electron (2014) 25:4122-4128.
9. A. Christou, “Process-Reliability Relationships in GaN and GaAs Field Effect Transistors and HFETs”, Compound Semiconductor Manufacturing Technology, Digest_2013, pp 391-394.
10. A. Christou, “GaN MESFETs and HFETs Processing Technology and Reliability Relationships, and Robust Wide-band gap Power Semiconductor Devices”, Micro-Nanotechnology, Digest of Presentations_2013
11. A. Christou and D. Pavlidis, (Keynote Talk) “Control of Surfaces and Interfaces for Enhanced Performance and Reliability of Wide Bandgap Semiconductor Devices” Technical Digest of International Conference on Intergranular and Interphase Boundaries in Materials 2013, , Halkidiki Greece, Digest of Presentations.
12. M. Sawant and A. Christou, “Failure Modes and Effects Criticality Analysis and Accelerated Life Testing of LEDs for Medical Applications”, Solid State Electronics, Volume 78, Pages 39-45 (2012).

13. M. Sawant and A. Christou, "A Bayes approach and criticality analysis for reliability prediction of AlGaInP light emitting diodes", JEDEC Reliability of Compound Semiconductor Devices, 2012, pp125-132.
14. Zahra Mohaghegh, M.Modarres and A. Christou, "Physics-based Common Cause Failure Modeling in Probabilistic Risk Analysis: a mechanistic perspective", ASME Trans on Power and also in POWER2011 and in Reliability Engineering and System Safety (2012)
15. S. Salemi and A. Christou, " Failure Modes and Effects Criticality Analysis of AlGaIn/GaN Based Microwave Device Degradation Mechanisms", CSMANTECH pp 233-236, ISBN 978-1-893580-17-6 (2011).
16. T. Martin, A. Christou, M Peckerar, "Thin Film Power Source Integrated With a a-Si:H Thin Film MOSFETs on Flexible Substrates" , CSMANTECH, pp 333-337, ISBN 978-1-893580-17-6 (2011)
17. A. Christou, "Dielectric Constants With Extended Model of Interband Transition Contributions for AlGaInAs Quaternary Semiconductor Alloys, by, (Invited), Proceedings of Workshop on Compound Semiconductor Devices and Integrated Circuits, pp 193-195, ISBN 978-88-8080-123-8 (2011)
18. A. Christou, " Failure Modes and Effects Criticality Analysis (FMECA) of AlGaIn/GaN Based Microwave Device Degradation Mechanisms" in Proceedings of Compound Semiconductor Manufacturing Technology Conference (CS MANTECH 2011) Palm Springs CA May 20-23, 2011.
19. T. Martin and A.Christou, "Life Stress Relationships for Thin Film Transistor Gate Interconnects on Flexible Substrates," IRPS, IEEE, Vol. CFP9RPS, pp 117-121, 2010.
20. A. Christou, "Enhancing Reliability of Complex Compound Semiconductor Electronics Against Ionizing Radiation," Proceedings WOCSDICE 2010, Vol. WoRe0145, 132-135, 2011
21. A. Christou, Martin Peckerar, T. Martin, "Integrated Power Source With a-Si:H/a-SiGe:H/a-SiC Thin Film MOSFETs for Flexible Electronics," WOCSDICE 2009, Malaga Spain, Tue4-Organics.
22. S. Salemi and A. Christou, "Charge Control Analysis of GaN Semiconductor Heterostructures and Comparison With GaAs HFET Failure Mechanisms", WOCSDICE 2008, Leuven, Belgium.
23. Seokjin Kim, Kwangsik Choi, Martin Peckerar, and Aris Christou, "Line-spike induced failure mechanism in integrated circuit bond-wires," Proceedings of 2008 IRPS, IEEE-EDS, Vol CFP8RPS, pp.356-360 (2008).
24. A. Christou, "Science Based Courses in Materials Processing Within a Materials Engineering Curriculum: The Electronic Component Learning Tool", (Invited), Proceedings of ICEER2008, pp 215-219, International Conference on Engineering Education Research, July27-30, 2008, Budapest, Hungary.
25. A. Christou, C.C. Zhang and M. Linnick, "Tunable Wavelength Surface Quantum Cascade Lasers for Chemical Sensors in the 3-6 mm Spectral Range," Proc of SPIE Vol 6740 67400G-1 (2007).

26. A. Christou, "Monte Carlo Reliability Model for Microwave Monolithic Integrated Circuits," Qual. and Reliability Int, Vol. QRE-896, pp 1-15 (2007).
27. S. Yang, A.Christou, "Failure Model for Silver Electromigration" IEEE Trans Materials Device Reliability, Vol2, Feb 2007.
28. S. Yang, J.Wu, A. Christou, "Initial Stages of Silver Electrochemical Migration Degradation," Microelectronics Reliability vol.46 (2006) 1915-1921.
29. C.C. Zhang, Aris Christou, "Reliability of Leadless Interconnects in GaAs ASICS", J. of RIAC, 2006, No.2, 20-26.
30. Ahangir Alam, Andrei E. Botchkarev, James A. Griffin, John M. Zavada, Aristos Christou and S. Noor Mohammad, "Optical properties of MBE-grown GaAs_{1-x}N_x alloys", Phil Mag, 1121-1134, 2006.
31. M. Linnick, Chichang Zhang and A. Christou, "Dielectric Constants for AlGaInAs
32. Quaternary Semiconductor Alloys Grown by MBE for VCSEL Bragg Mirror Applications", in The Physics and Challenges for Integrated Optics Symposium, MS&T 2005, pp. 23-31.
33. M. Al-Sheikhley, A. Christou, "The Limitations of GaAs/DNA Based Bio-Memory and Sensing Device," WOCS DICE 2005, pp. 143-148, Cardiff Wales, UK (2005).
34. A. Christou, "Advances in Engineering Education: Building alliances With Professional Societies", Proceedings of Int Conf on Engineering Education, ISBN: 1562-3580, July 2005, Gliwice Poland.
35. L.Mohaddes-Ardahilli, L. Martinez-Miranda, L. Salamanca-Riba, A. Christou, William Bentley and M. Al- Sheikhley, "Preferred Orientation of DNA Oligonucleotide probes on the (2x4) Reconstructed Surface of (001) GaAs," J Appl. Physics Vol 95, No. 11, Part 1 (6021-6024), June 2004.
36. Mohamad Al-Sheikhley, D. Sweet, Lourdes Salamanca-Riba, B. Varughese, J. Silverman, Aris Christou and William Bentley, "Radiation-Induced Failure Mechanisms of GaAs -Based Biochips," IEEE Trans on Device and materials Reliability, vol. 4, No. 2 (192-197), June 2004.
37. C. Zhang, P.Yalamanchili, M. Al-Sheikhley and A. Christou, "Metal migration in epoxy encapsulated ECL devices", Microelectronics Reliability 44 (2004) 1323-1330.
38. N. Strifas, P. Yalamanchili and A. Christou, "Reliability Model for Polyimide-Metal Interconnect Shorts in GaAs ASICs," J. of Quality and Reliability Engineering International, Vol 20, 747-759, (2004).
39. L.Mohaddes-Ardahilli, L. Martinez-Miranda, J. Silverman, A. Christou, L. Salamanca Riba and M. Al- Sheikhley, "Attachment of DNA Probes on GaAs Surfaces", Appl. Physics Lettrs, 83, No. 1, pp. 192-194 (2003).
40. A. A. Iliadis and A. Christou, "Design and Development of Short and Long Wavelength Infrared Vertical Channel Surface Emitting Lasers", Invited Paper OE15 29-02, 2003 Photonics West, Published in SPIE Proceedings.

41. M. Linnik and A. Christou, "Calculations of optical properties for Quaternary III-V semiconductor alloys in the transparent region and above", *Physica B*, 318, pp 140-161 (2002).
42. M. Linnik and A. Christou, "Vertical Cavity Surface Emitting Laser with GaInSbAs/AlInSbAs Bragg Mirrors for Operation at 1.5 μ m," *IEEE Transactions on Electron dev.* Vol 48, No. 10, pp. 2228-2237 (2001).
43. A. Christou, A. Dimoulas, A. Cornet, "Epitaxial Growth Morphologies of AlAsIn/InGaAs heterostructures on non-(100) InP Index Substrates," *Materials Science and Engineering B87* pp. 249-255 (2001).
44. M. Linnik and A. Christou, "Optimization of III-V Compound Semiconductor Heterostructures for Distributed Bragg Reflector Applications in VCSELs," *Materials Science and Engineering B80* pp. 245-247 (2001).
45. M. Linnik and A. Christou, "AlGaInAs/InP and GaInSbAs/Inp Highly Reflective Mirrors for VCSEL Applications Operating at 1.55 microns", *SPIE*, vol 4278, pp 125-131 (2001).
46. A. Christou, "Charge Transport in Low Dimensional Nitride Semiconductor Heterostructures," *Physica B*, Vol 296, No. 1-3, pp264-271 (2001).
47. L. Guan, A. Christou, and D. Barbe, "The Effect of Corrosion on the Performance of High Speed Multi-Chip Module Interconnects," *Quality and Reliability Engineering International*, Vol. 16, pp. 1-6 (2000).
48. L. H. Zhu, A. Christou, and D. F. Barbe, "High Temperature Device Performance and Thermal Characteristics of GaAs MESFETs on CVD Diamond Substrates," *Quality and Reliability Engineering International Vol 16*: 527-536 (2000).
49. T. Feng, M. Al-Sheikhly, and A. Christou, "Defect Formation in SiGe/Si Structures Grown on GaAs by CVD Techniques Utilizing a Si:H Template Layer," *Materials Science & Engineering*, B67m 70-75 (1999).
50. N. Strifas, P. Panayotatos and A. Christou, "Optical Interconnect Reliability", *Optical Engineering* (37)8, August 1998.
51. S. Krishnan, N. Goldsman and A. Christou, "Transport Simulation of Bulk Al_xGa_{1-x}N and the Two-Dimensional Electron Gas at the Al_xGa_{1-x}N/GaN Interface", *Journal of Applied Physics*, Vol. 83, No. 11, June 1998.
52. A. Christou, G. Halkias, "Degradation Mechanisms and Related Failure Modes in GaAs Digital ICs, Proceedings of ERRSDEC 1998 Conference, Brussels.
53. T. Feng, N. Strifas and A. Christou, "Degradation of Performance in MESFETs and HEMTs: Simulation and Measurement of Reliability", *Microelectronics Reliability* (38) pp.1239-1244 (1998).
54. *Correlation in Manufacturing of Advanced Microelectronics*", PSAM 4 1998, Springer-Verlag pp.57-69, (1998).

55. D. Girginoudi, A. Thanailakis, V. Kasabyan and A. Christou, "Two Dimensional Clusters in SiGe/Si Heterostructures, J. Superlattices and Microstructures", 23, No.2, 407-411, 1998.
56. M. Al-Sheikhly, W. L. McLaughlin, A. Christou and A. Kovács, "Radiochromic Blue Tetrazolium Film Dosimeter", IAEA-SM-356/62, November 1997.
57. T. Feng, A. Dimoulas, A. Christou, G. Constandtinidis, "Failure Mechanisms of GaAs MESFETs with Cu/Refractory Metallized Gates, in Microelectronic Reliability, Vol. 37, No. 10/11, pp. 1699-1702. 1997.
58. L. Guan, A. Christou, D. F. Barbe, "The Effect of Corrosion on the Performance of High Speed Multichip Module Interconnects", in Microelectronic Packaging, Vol. 3, pp 1-7, 1997.
59. D. Young, A. Christou, R. Ramesh, D. K. Fork, and B. Krusor, "Integration of (001) Oriented LSCO/PLZT/LSCO Ferroelectric Capacitors on (001) GaAs with a MgO Buffer Layer", Integrated Ferroelectrics, 12, 63 (1996).
60. C. Pusalra, A. Dasgupta, M. G. Pecht, & A. Christou, "A Physics of Failure Design Philosophy Applied to Flip-Chip Bonding", Microelectronics International-Journal of ISHM-Europe, No. 36, January 1995, pp. 6-13.
61. P. Yalamanchili, P. McClusky and A. Christou, "Optimum Processing Prevents PQFP Popcorning", Journal of Surface Mount Technology, pp. 39-42, May 1995.
62. L. Guan, A. Christou, G. Halkias and D. F. Barbe, "Modeling of Current-Voltage Characteristics for Strained and Lattice Matched HEMTs on InP Using a Variational Charge Control Model", IEEE Trans. Electron Dev., Vol. 42, No. 4, pp. 612-617, 1995.
63. P. Yalamanchili, R. Gannamani, P. McClusky and A. Christou, "Optimum Processing Prevents PQFP Popcorning", Journal of Surface Mount Technology, May 1995, pp. 39-42.
64. C. Pursala, A. Dasgupta, M. G. Pecht and A. Christou, "A Physics of Failure Design Philosophy Applied to Flip-Chip Bonding", Microelectronics International-Journal of ISHM-Europe, No. 36, pp. 6-13, January 1995.
65. L. Guan, C. Pusalra, G. Halkias, & A. Christou, "Module Level Performance Simulator for the Figure of Merit of Electrical and Optical Interconnects," The International Journal of Microcircuits and Electronic Packaging, Volume 17, Number 1, 1994, pp. 50-61.
66. P. Yalamanchili, A. Christou, S. Martell and C. Rust, "C-SAM Sounds the Warning for IC Packaging Defects", IEEE Circuits and Devices, Vol. 10, No. 4, July 1994, pp. 36-41.
67. M. Linnik and A. Christou, "Optimization of III-V Compound Semiconductor Heterostructures for Distributed Bragg Reflector Applications in VCSELs", EXMATEC 2000, May 23-25, 2000 (Crete)
68. M. Linnik and A. Christou, "Highly Reflective Bragg Mirrors for VCSEL Applications at 1.3 and 1.55 μm ", SPIE, January 27-29, 2000, San Jose, CA.

69. M. Linnik and A. Christou, "Optical Properties of AlGaAsSb, AlGaInP, AlGaInAs, and GaInAsP for Optoelectronic Applications," MRS, December 1-3, 1999 (Boston).
70. H.-W. Fang, M.C. Shen, U. Cho, J. Tesk and A. Christou and S. M. Hsu, "Generation of Different UHMWPE Particle Shape by Wear through Surface Texturing", Society for Biomaterials Annual Meeting, Apr. 27 - May 2, 1999.
71. J. Arbiol, F. Peiro, A. Cornet, and A. Christou, "Growth Characterization of InAlAs/InGaAs Structures on InP non_(001) Index Substrates", MSMC, Oxford, March 22 - 25 1999.
72. A. Christou, T. Feng, and A. Georgakilas, "Twins and Stacking Faults in Heteroepitaxial Compound Semiconductor Materials", TMS/ISAT, San Diego, CA, February 28, - March 4, 1999
73. J. Arbiol, F. Peiro, A. Cornet, and A. Christou, "Growth Characterization of InAlAs/InGaAs Structures on InP Novel Index Substrates", 1999 Microscopy Conf., Jan. 1999.
74. M. Linnik and A. Christou, "GaInSbAs/AsInSbAs Vertical Cavity Surface Emitting Laser (VCSEL) for Operations at 1.5 μ m, SPIE, January 27-29, 1999, San Jose, CA.
75. M. Linnik, O. Wilson and A. Christou, "Thick PLZT Films Grown by Sol-gel for Optical Device Applications", 1998 Materials Research Society Annual Meeting, Dec. 1998.
76. T. Feng, A. Dimoulas, N. Strifas, and A. Christou, "High Performance Cu-Metallized Ga As HEMTs Processing and Reliability", MRS Fall Meeting, Boston, MA, Nov. 30 - Dec. 5, 1998.
77. M. Al-Sheikhly, W. L. McLaughlin, A. Christou, and A. Kovacs, "Radiochromic Blue Tetrazolium Dosimeter", IAEA, Vienna, November 2 - 5 1998.
78. R. H. Esser, A. Dimoulas, N. Strifas, A. Christou and N. Papanicolau, "Materials Interfaces in Flip Chip Interconnects for Optical Components; Performance and Degradation Mechanisms", ESREF 1998, Copenhagen, Denmark, Oct. 5-9, 1998.
79. Ting Feng, N. Strifas, and A. Christou, "Degradation of Performance in MESFETs and HEMTs: Simulation and Measurement of Reliability", ESREF, Denmark, October 5-9, 1998.
80. M. Linnik and A. Christou, "Vertical Cavity Surface Emitting Laser (VCSEL) Structure with Optimized Reflection and Transmission Multilayers for Operation at 1.55 μ m", Compound Semic Conference, Kyoto, Japan, September 1998.
81. M. Shen, S. Hsu, A. Christou, "A Novel Multiaxial Wear Tester for Accelerated Testing of Materials", 45th Annual Meeting, Orthopaedic Research Society Proceedings, Feb. 1998.
82. T. Feng, A. Dimoulas, and A. Christou, "GaAs-on-Si MSM Photodetector-FET Receiver Characterization and Reliability", Proceedings of ESREF 1997, October 1997.
83. K. Katsikini, E. C. Paloura, A. Ginoudi, E. Holub-Krappe and A. Christou, "N-K-edge EXAFS of AlN grown by ECR-MBE", Proceedings of ICPS XXII, Berlin, Germany, July 1996.

84. N. Strifas, P. Yalamanchili and A. Christou, "Modeling of Physical Failure of Microwave and Optical Modules for Assessment of System Risk", International Conference on Probabilistic Safety Assessment and Management, Crete, Greece, June 24-28, 1996.
85. K. Katsikini, E. C. Paloura, A. Ginoudi, E. Holub-Krappe and A. Christou, "N-K-edge EXAFS of GaN and AlN grown by ECR-MBE", E-MRS, Strasbourg, France, May 28-30, 1996.
86. C. Pusarla and A. Christou, "Solder Bonding Alignment of Microlens in Hybrid Receiver for Free Space optical Interconnects", Electronic Components and Technology Conference, Orlando, Florida, May 28-31, 1996.
87. K. Lagadas, Z. Hatzopoulos, N. Kornilios, M. Androulidaki and A. Christou, "Electrical Properties of GaAs Epilayers, FET and HEMT Structures Grown on LTGaAs by MBE", Expert Evaluation and Control of Compound Semiconductor Materials and Technologies EXMATEC '96, Freiburg, Germany, May 12-15, 1996.
88. C. Pusarla and A. Christou, "Solder Bump Bonding Alignment in Hybrid Process", International Conference on Emerging Microelectronics and Interconnection Technologies, Bangalore, India, February 12-16, 1996.
89. P. Yalamanchili and A. Christou, "Migrated Copper Resistive Shorts in Plastic Encapsulated Devices", International Conference on Emerging Microelectronics and Interconnection Technologies, Bangalore, India, February 12-16, 1996, Proceedings of Conference.
90. P. Yalamanchili and A. Christou, "Failure Analysis of Printer Wiring Boards", International Conference on Emerging Microelectronics and Interconnection Technologies, Bangalore, India, February 12-16, 1996. Proceedings of Conference.
91. C. Pusarla and A. Christou, "Diffraction Loss and Optical Crosstalk in Hybrid Receiver for Free Space Optical Interconnection", SPIE's Photonics West '96 Symposium, San Jose, California, January 27-February 2, 1996, Proceedings of Conference.
92. M. Al-Sheikhly, W. McLaughlin, and A. Christou, "UV, Soft X-Ray and Gamma-Ray High Resolution Imaging and Discrimination by Novel Photo-Polymer Film System on GaAs", Denver 96 SPIE Symposium, Denver, Colorado, 1996.
93. M. Al-Sheikhly, W. McLaughlin, and A. Christou, "Radiation Gel-Core Fluorinated-Ethylene Polyethylene Fiber Optics Integrated with GaAs MMICs for Distributed Sensing of X and Gamma Rays", Denver 96 SPIE Symposium, Denver, Colorado, 1996.
94. N. Strifas and A. Christou, "Diamond Heat Sinks for High Temperature Electronics: Simulation, and Thermal Analysis", 1995 MRS Fall Meeting, Boston, Massachusetts, November 27-December 1, 1995.
95. H.D. Young R. Ramesh, A. Christou, D. K. Fork, and B. Krusor, "Ferroelectric La-Sr-Co-O/Pb La-Zr-Ti-O/La-Sr-Co-O Oxide Heterostructures Grown on (001) GaAs and (001) GaAs and (001) Si", 1995 MRS Fall Meeting, Boston, Massachusetts, November 27-December 1, 1995 .

96. N. Strifas and A. Christou, "Thermal Stress Analysis and Simulation of Voids and Fracture at the GaAs-Ceramic (Al₂O₃) Interface", 1995 MRS Fall Meeting, Boston, Massachusetts, November 27-December 1, 1995.
97. N. Strifas, P. Yalamanchili and A. Christou, "Die Attache Void Formation and Delamination at the GaAs MMIC/Ceramic Substrate Interface", 1995 GaAs Reliability Workshop, Sand Diego, California, October 29, 1995.
98. P. Yalamanchili and A. Christou, "Migrative Copper Resistive Shorts in Plastic Encapsulated Devices", 1995 International Integrated Reliability Workshop, Lake Tahoe, California, October 22-25, 1995.
99. C. Pularla, L. Ling and A. Christou, "Reliability Issues in Hybrid Optoelectronics Interconnect Systems", 6th European Symposium on Reliability of Electron Devices, Failure Physics and Analysis, Bordeaux, France, October 3-6, 1995.
100. A. Christou, "Integration of the Materials Science Curriculum within an Engineering College", Materials Education Workshop, Cancun, Mexico, August 27-September 1, 1995.
101. D. W. Prather, J. W. Mait, and M. C. Peckerar and A. Christou, "Design and Fabrication of an Off-Axis Fresnel Array Generator as a Module for Optical Interconnects", ARMY Conference on Photonics, U.S. Army Missile Command, Redstone Arsenal, Alabama, April 1995.
102. A. Christou and C. Pularla, "Hybrid Transmitter and Receiver Arrays for Chip-to-Chip and Board to-board Free Space Optical Interconnects", European Symposium on Advanced Networks and Services, Amsterdam, Netherlands, March 20-24, 1995.
103. C. Pularla, A. Christou, & C. Davis, "Alignment Tolerance in Hybrid Source and Detector Arrays", Proceedings of the 1994 International Symposium on Microelectronics, ISHM, Boston, November 15-17, 1994.
104. N. Strifas and A. Christou, "Failure Mechanisms, Thermal Analysis and Finite Element Modeling of Medium Band Low Noise Amplifiers", ASME Winter Annual Meeting, Chicago, Illinois, November 6-11, 1994.
105. C. Pularla, A. Christou, & C. Davis, "Simulation of Losses in Hybrid Opto-Electronic Die Stack", Proceedings of the 3rd Topical Meeting on Electrical Performance of Electronic Packaging, Monterey, California, November 2-4, 1994.
106. N. Strifas and A. Christou, "Die Attach Adhesion and Void Formation at the GaAs Substrate Interface", MRS Fall Meeting, Boston, Massachusetts, November 1994.
107. T. Feng and A. Christou, "Tungsten Silicide Stability and Interface Reaction Determined by Modeling and Experiments", MRS Fall Meeting, Boston, Massachusetts, November 1994.
108. M. Al-Sheikhly and A. Christou, "Ionizing-Radiation and High-Temperature-Induced Oxidation of the Electronic Packaging Materials of GE-HDI Electronic Board", 5th European Symposium on Reliability of Electron Devices, Failure Physics and Analysis, Glasgow, Scotland, Oct. 4-7, 1994.

109. C. Pularla, L. Guan, & A. Christou, "Performance Degradation Simulation of Electrical and Optical Interconnects due to the Operational Environment", "Proceedings of the International Electronics Packaging Conference, Atlanta, September 25-28, 1994, pp. 45-56.
110. P. Yalamanchili and A. Christou, "High Temperature Microwave Multichip Module Thermal Analysis", Second International High Temperature Electronics Conference, Charlotte, North Carolina, June 5-10, 1994.
111. J. Huang and A. Christou, "Finite Element Thermal Stress Analysis of Elevated Temperature Thermoelectronic Power Modules", Second International High Temperature Electronics Conference, Charlotte, North Carolina, June 5-10, 1994.
112. A. Georgakilas, G. Halkias and A. Christou, "A Comprehensive Optimization of InAlAs Molecular Beam Epitaxy for InGaAs/InAlAs HEMT Technology", *Journ. Electro Chem. Society*, Vol. 140, No. 5 pp.15503-1509 (May 1993).
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II.N. Patents

II.N.1. Device

1. “Electron Collector for Forming Low-Loss Electron Images,” (1978).
2. “Ohmic Contacts for Group III-V N-Type Semiconductors Using Epitaxial Ge Films,” (1979).
3. “Method for Epitaxial Growth of GaAs Films Independent of Substrate,” (1980).
4. “Low Barrier Height Epitaxial Ge-GaAs Mixer Diode,” (1980).
5. “Semiconductor Encapsulant for Annealing Ion Implanted GaAs,” (1980).
6. “Multi-Refractory Films for GaAs Devices,” (1980).
7. “Ion Implanted Improved Ohmic Contacts to GaAs,” (1980).
8. “Ion Implanted Evaporated Germanium Layers as n+ Contacts to GaAs,” (1981).
9. “Refractory Passivated Ion Implanted GaAs Ohmic Contacts,” (1981).
10. “Refractory-Refractory Oxide InP MIS Schottky Diodes (1988).
11. “Formation of Epitaxial Si-Ge Heterostructures by Solid Phase Epitaxy,” (January 1991).

IV. Service and Outreach

IV.A. Editorships, Editorial Boards, and Reviewing Activities

Include participation for journals and other learned publications (print and electronic).

IV.A.1. Editorships

IV.A.2. Editorial Boards

Editor , Materials Science and Engineering, Published by OMICS	2013-present
Assoc. Editor IEEE Transactions on Device and Materials Reliability	2000-2013
Associate Editor IEEE Trans on Electron Devices	1998-2010
Editor , Reliability and Quality International, John Wiley Publisher	1998-Present
Editorial Board Member and Technical Committee Member of GaAs Applications Conference	1990-1996
Academic Press , Journal of Superlattices and Microstructures, Member of the Board	1988-1995
Institute of Physics-Solid State Series (UK)	1987-1988
Kluwer Publishing Company, NATO ASI Series	1987-1989
IEEE Transactions on Parts, Hybrids and Packaging, Member of Editorial Board	1978-1981

IV.B.6. Offices and Committee Memberships

Technical Program Committees

- Technical Program Committee of ECS Symp. “Defects in Wide Band Gap Semiconductors”, 2003
- Technical Program Committee of 2nd International Conference of Materials Science and Engineering, 2003
- Technical Program Committee of IEEE, International Reliability Physics Symposium, 2005-2011
- TMS Annual Meeting, Organizer of Symposium “Photonic Materials-Future Challenges” Feb 25-Mar 1, 2007, Orl. Florida.
- MS&T Annual Meeting, Organizer of Symp. on “The Physics and Material Challenges for Integrated Optics” Pittsburgh Pa, 2005
- FMS/ NMAB Technical Conference on Materials, Wash. DC, 2004
- Gallium Arsenide Applications Symposium, Munich Germany, 2003

- NATO ASI Advanced Study Institute, Nanomaterials, Crete, 2002
- EXMATEC 2000 Sym. on Materials and Electronic Process Science, 2000
- ESREF 97 European Symposium on Reliability, 1997
- MRS 95 Symposium on the Mechanics of Nanocrystalline Materials, 1995
- ESREF 94 European Symposium on Reliability, 1995
- ESREF 95 European Symposium on Reliability, 1994
- IRPS 92, International Reliability Physics Symposium, 1993
- IRPS 93, International Reliability Physics Symposium, 1992
- SAMPE Society for the Adv of Materials, and Processes Engineering, Baltimore Meeting, 1992
- IRPS 92, International Reliability Physics Symposium, 1992
- ESREF 91 Symposium on Reliability and Failure Analysis (France), 1991
- International Conference on the Physics of Semiconductors, 1990
- International Conference on GaAs Applications 1990 (Italy), 1990
- IEEE MTT Symposium, Panel on Microwave Circuit Reliability, 1990
- EEC Symposium on Device and Circuit Reliability (Italy) (ESREF), 1990
- IEEE GaAs I.C. Manufacturing Technology Symposium, 1988-89
- International Symposium on GaAs and Related Compounds (Japan), 1988-89
- EEC Conference on Metastable Phases (Netherlands), 1986
- NATO ASW on Solid State Reliability (Denmark), 1985
- IEEE Int. Reliability Physics Symposium Committee Member, 1982-85
- IEDM Int. Electron Device Meeting, Committee Member, 1981

Technical Advisory Committees

- Member of IEEE Power Electronics Committee, 2013-Present
- Member of EEC Expert Panel on Condensed Matter Physics “Aristeia”, 2011-13
- Member of EEC Advisory Board on WP7, “Future Microelectronics”, 2008-10
- Member of the NMAB, National Research Council, “Materials Societies Roundtable”, 2006-2008
- Member of the Board of Visitors , University of California, Berkeley, CA, Materials Science and Engineering Department, 2006-2008
- Member of Review Panel for NERI program, 2000,2002, 2009
- Member of a number of NSF Review Panels, 1991-2014
- Naval Studies Board, Head of Subcommittee on Materials for the Navy of the 21st Century, 1997-1998
- National Research Council Advisory Committee on Materials for Microwave Devices, 1994-95
- National Research Council Committee on High Temperature Electronics, 1994-95
- Chairman IRPS Committee on Compound Semiconductors, 1991-94
- Member of the Technical Advisory Committee of GaAs and Related Compounds Symposium, 1988-94
- Member of National Science and Technology Council, Sub committee on Electronic Materials (NSTC), Working Group on Electronic Materials, 1992-94
- Member, NATO Scientific Affairs Committee, 1987-88
- Member of the UNESCO Science Committee and UNESCO Scientific Advisory, 1979-1981
- Member of DARPA Advisory Committee on GaAs Reliability/Radiation Effects, 1988-1990
- Member of the National Academy of Sciences Committee on Interconnects and Electronic Packaging, 1988-89
- Member of the IEE (UK) Committee on Heterojunctions and Heterostructures, 1987-88

- Member of International Advisory Committee on GaAs and Related Compounds, GaAs and Related Compounds Conference, 1987-96
- Member of EEC ESPRIT Review Committee, review of European Program on the special action on Information Technology, 1986-1987
- Member and Chair of a number of NRL and ONR Program Review Committees, 1972-1985

IV.B.7. Leadership Roles in Meetings and Conferences

Conference Chairman

- NSF Workshop on Defects in Wide Band gap Semiconductors, Sept 2014.
- Workshop on Wide Band Gap Semiconductor Power Electronics, October 23, 2012, University of Maryland.
- Understanding Failure Mechanisms, Reliability Information Analysis Center, December 3-5, 2011, Orlando FL, Stetson University.
- Chair EXMATEC (EXPERT Control Materials Evaluation Conference) May 30-June 1, 2007.
- Chair and Technical Program Chair of FMS/NMAB Symposiums on Materials Education for the 21st Century Workforce, May 23-25, 2004.
- Chair of MRS Symposium on Molecular and Nanomolecular Electronics, April 2001.
- NATO Advanced Study Institute, Rapid Thermal Processing, June 17-23, Italy.
- Co-Chair of MRS Symposium on the Mechanics of Nanocrystalline Materials, April MRS.
- Reliability of GaAs Monolithic Microwave Integrated Circuits Workshop, JEDEC Workshop, Oct 1991.
- Fifth International Conference on Superlattices, Microstructures and Electro-optical Devices, September 1990, Heraklio Crete.
- NATO Advanced Study Institute on “Semiconductor Device Reliability”, September 1989, Heraklio Crete.
- 14th International GaAs and Related Compounds Symposium, September 1987.
- IEEE Integrated Circuits “Compound Semiconductor Reliability Workshop”, 1982-1985

IV.B.8. Other Non-University Committees, Memberships, Panels, etc.

- Institute of Electrical and Electronic Engineers (Fellow)
- American Physical Society
- Materials Research Society
- The Minerals, Metals and Materials Society
- Society of Photonic and Instrumentation Engineers (SPIE)
- Member 1993-2003 of the University Materials Council. The UMC is the national council of materials department chairmen.
- Member 1993-2003 of NEDHO (The Nuclear Engineering Department Heads Organization)
- Member of Board of Trustees of Federation of Materials Societies, 2000-Present.
- Vice President 2003, Federation of Materials Societies.
- President 2005-2007, Federation of Materials Societies.
- International Network of Engineering Education Research (iNEER)
- Member, American Society of Metals, International (ASM, International)

V. Awards, Honors and Recognition

V.1. Research Fellowships, Prizes and Awards

- Ford Foundation Fellowship, for graduate studies in Materials, 1969-70
- Alan Berman Publication Award. Two separate archival publications were awarded, power transistors, 1974
- Alan Berman Publication Award. Two Awards for the archival publication in the area of microwave power transistors, 1976
- Fullbright Scholar Award. Granted to Dr. Christou for the academic year 1985-86 for research in Molecular Beam Epitaxial Materials in Europe
- The Naval Research Laboratory Outstanding Performance Award. Granted to Dr. Christou for outstanding research and management during 1989 and 1990
- SPIE Publication, Best Paper Award, 1991
- Navy (NRL) Patent Award for Electron Device Inventions, 1991
- Fellow of the IEEE. For contributions in the area of GaAs device and circuit reliability, 1993
- University of Maryland Invention of the Year Award in the Physical Sciences, 1999

V.2 Teaching Awards

- IEEE National Lecturer in Electron Devices, 1999-2002
- IEEE National Lecturer in Optoelectronic Devices and Device and Materials Reliability Physics, 2000

V.3 Service Awards and Honors

- Outstanding Service Awards from 1978-1983 for contributions to solid state electronics for phased array radar and for contributions to reliable microelectronics materials, 1978-83
- Millenium Medal from the University of Bologna, Celebrating the millennium anniversary of the University of Bologna, Centenial Award for Contributions in Compound Semiconductors, 1987
- iNEER Lifetime Achievement Award, International Network of Engineering Education Research Award for Contributions to international engineering education, 2004
- IEEE Electron Devices Society Recognition and Contributions Service Award (2001-2012)

V.5 Other Special Recognition

- UNESCO Award for Scientific Excellence, 1981
- FMS Recognition Award, for contributions to FMS as its President for years 2005 and 2006
- ASM Burgess Memorial Award, for Seminal Contributions to Electronic Materials, Packaging and Devices, 2007
- Keynote Speaker Award 2nd International Conference on Materials Science and Engineering