

RESUME

LEONARD C. FELDMAN

BUSINESS ADDRESS: Rutgers, The State University of New Jersey
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EDUCATION: B.A. (Physics) - Drew University - 1961
M.S. (Physics) - Rutgers, The State University of New Jersey - 1963
Ph.D. (Physics) - Rutgers, The State University of New Jersey - 1967

EMPLOYMENT:

Rutgers, The State University of New Jersey, 2007-

- *Vice President, Physical Science and Engineering Partnerships, 2007-*
- *Director, Institute for Advanced Materials, Devices and Nanotechnology, 2007-*
- *Distinguished Professor of Physics and Astronomy, 2007-*
- *Distinguished Professor of Materials Science and Engineering, 2007-*

Vanderbilt University, 1996-

- *Adjoint Professor of Materials Science and Engineering, Department of Electrical Engineering and Computer Science, 2011-*
- *Adjoint Stevenson Professor of Physics, Department of Physics and Astronomy, 2011-*
- *Stevenson Professor of Physics, Department of Physics and Astronomy, 1996-2011*
- *Professor of Materials Science and Engineering, Electrical Engineering Department, 2003-2011*
- *Co-Director, Interdisciplinary Graduate Program in Materials Science, 2000-2005*
- *Director, Vanderbilt Institute of Nanoscale Science and Engineering, 2001-2007*
- *Director, N.S.F. Integrative Graduate Education and Research Traineeship (IGERT), 2003*

Oak Ridge National Laboratory, Solid State Division/Condensed Matter Division

- *Distinguished Visiting Scientist, 1996-2002*

Fisk University, 2004-

- *Adjunct Professor, 2004-*

AT&T Bell Laboratories, 1967 – 1996

- *Department Head: Silicon Materials Research Department, 1990 - 1996*
Silicon Electronics Research Laboratory (R. E. Howard, Director)
- *Department Head: Thin Film Semiconductor Research Department, 1987-1990*
Materials Processing Laboratory (A.Y. Cho, Director)
- *Department Head: Materials Interfaces and Ceramics Research Department, 1984-1987*
Materials Science Laboratory (G.Y. Chin, Director)
- *Supervisor: Materials Interface Characterization Group, 1983-1984*
Physical Metallurgy and Ceramics Research Department (G. Y. Chin, Dept. Head)
- *Member of Technical Staff: 1967-1983*
Radiation Physics Department (W. L. Brown, Dept. Head)

RESEARCH INTERESTS:

Electronic Materials, Surface and Interface Science, Condensed Matter Physics
Thin Films, Epitaxy, Materials Science, Nanostructures,
Materials Modification and Analysis Using Ion Beams
Organization and Administration of Academic Research
Science Education, Technology and Society

HONORS & AWARDS:

Fellow of IEEE (2015)
Fellow of American Association for the Advancement of Science (AAAS) (2004)
Fellow of American Vacuum Society (1990)
Fellow of American Physical Society (1978)
Fellow of the Materials Research Society (2013)
Royal Danish Academy of Sciences and Letters (elected, 1994)
David Adler Lectureship Award, Amer. Phys. Soc. (1999)
Elizabeth Laird Memorial Lecture, University of Western Ontario (2011)
Miegunyah Distinguished Fellow, Melbourne, Australia (2009)
Distinction in the Physical Sciences Alumni Award, Rutgers Graduate School (2008)
Lindhard Lecturer, Int'l. Conf. Atomic Collisions in Solids (2003)
Distinguished Visiting Scientist - Oak Ridge National Lab. (1996)
"Who's Who in America" (2002)
Chairperson, Gordon Conference on Defects in Semiconductors (1996)
Drew University Alumni Achievement Award in Science (1996)
Ontario Center for Materials Research - Distinguished Lecturer (1991)
Distinguished Merit Award - Materials Science and Engineering - University of Illinois (1989)
Distinguished Member of Technical Staff - AT&T Bell Labs (1982)
Listed: 1000 Most Cited Physicists (1981-1997) (Out of 500,000)
Chairperson, Gordon Conference on Particle - Solid Interactions (1978)
Robert Mehrabian Distinguished Lecturer in Materials - University of California Santa Barbara

SCIENTIFIC JOURNALS:

Advisory Board, *J. of Engineering Science and Technology Review* (2011-)
Series Editor-in-Chief, "Energy and Materials," World Scientific / Imperial College Press (2011-)
Distinguished Advisory Board, *J. of Materials Science* (2004-)
Associate Editor, *International J. of Nanoscience* (2001-2005)
Associate Editor, *J. of Vacuum Sci. & Tech. A* (1996-1999)
Editor-in-Chief, *Applied Surface Science*, North Holland (1985-1996)
Principal Editor, *J. of Materials Research* (1989-1994)
Editorial Board, *Surface Science Reports*, Elsevier (1986-2006)
Editorial Advisory Board, *Radiation Effects and Defects in Solids*, Gordon and Breach (1982-)

UNIVERSITY ACTIVITIES:

Cornell: Proposal Judging Panel for Platform for the Accelerated Realization, Analysis, & Discovery of Interface Materials (PARADIM) (2016)
External Program Reviewer Committee, University of Texas, Dallas, MSE Dept. (2013)
International Council Member, Kavala Institute of Technology, Kavala, Greece (2010-)
NSF Int'l Materials Institute for Solar Energy and Environment(IMI-SEE.)Advisory Board (2010)
New Jersey's Science & Technology, Physics Department Advisory Board (2007-)
Fisk University, Adjunct Professor, Research Co-advisor (2004-2011)
University of Western Ontario, Physics Visiting Review Com. (2003)
University of North Texas, Physics Dept. Visiting Review Com. (2003)
Univ. of Western Ontario, Phys. Rev. Visiting Panel (2002)
Univ. of Wisconsin, MRSEC Advisory Board (2001-2005)
Columbia University, MRSEC Advisory Board (1999-2005)
Colorado School of Mines — Advisory Com. — Materials Science Dept. (1990-)
Cornell University—Adjunct Prof. (MS&E)—Initiated a course on "Thin Films and Epitaxy," 1988, 1990
Cornell University — Visiting Professor (Initiated a course with J. W. Mayer on "Physics of Modern Materials Analysis") (1982)
State Univ. of New York, Albany (Physics Dept.), Associate Faculty
Univ. of Guelph, Canada (Physics) Associate Graduate Faculty (1978-1984)
University of Western Ontario, Physics, Associate Graduate Faculty (1978-1996)
Drew University Research Advisor — Field Work Program for Seniors

Instructor — In-Hours Continuing Education Program — Bell Labs
(Involving the teaching of graduate level physics course to research scientists)
Instructor — American Vacuum Society, Materials Res. Soc. — Short Course Program
Supervised research for 18 Ph.D. theses and 11 post-doctoral appointments

Ph.D. THESES SUPERVISED:

- Can Xu, “Ion Beam Analysis of Novel Materials and Devices Involving Silicon Carbide and Bismuth Selenide”, Rutgers University (2015) (co-supervised with T. Gustafsson)
- Yi Xu, “Structure and Chemistry of the Passivated Silicon Dioxide and Silicon Carbide Interface”, Rutgers University (2014) (co-supervised with E. Garfunkel)
- Oluseyi Stephen Babalola, “Surface and Bulk Defects in Cadmium Zinc Telluride and Cadmium Manganese Telluride Crystals”, Vanderbilt University (2009)
- E. Donev, “Metal Semiconductor Transitions in Nanoscale Vanadium Dioxide Thin Films, Subwavelength Holes, and Nanoparticles,” Vanderbilt University (2008)
- Manoj Sridhar, “Novel Mosfet-Based Fluidic Sensors and Simulations of Thermal Bubble Nucleation in Nanochannels,” (2008) (Co-supervised with A. Hmelo and D. Li)
- S. Dixit, “Radiation Induced Charge Trapping Studies of Advanced Si and SiC based MOS Devices,” Vanderbilt University (2008)
- J. Rozen, “Electronic Properties and Reliability of the SiO₂/SiC Interface,” Vanderbilt University (2008)
- S. Dhar, “Nitrogen and Hydrogen Induced Trap Passivation at the SiO₂/4H-SiC Interface,” Vanderbilt University (2005).
- R. Ruiz, “Morphology and Growth of Pentacene Thin Films on SiO₂,” Vanderbilt Univ. (with R. Haglund, 2003)
- R. Lopez, “Metal Semiconductor Phase Transitions in VO₂ Nanocrystals,” Vanderbilt Univ. [with R. Haglund] (2002)
- M.A. Morales-Paliza, “Indium Tin Oxide Films Deposited by Pulsed Laser Ablation at Room Temperature,” Vanderbilt University, Nashville (2001)
- J.A. Bennett, “Physics of Ion Implanted SiC,” Vanderbilt University, Nashville (2001)
- K. McDonald, “Nitrogen Incorporation and Interface Trap Reduction in SiO₂/4H-SiC,” Vanderbilt Univ. [with R.A. Weller] Nashville (2001)
- H. T. Tang, “Compositional Analysis of Gate Dielectric Films,” Univ. of Western Ontario, London, Canada (1995)
- Bonnie E. Weir, “Fabrication and Analysis of Boron Ordered Delta-Doping Layer in Silicon,” Stevens Inst. of Tech. (1993)
- Han-Sheng Jin, “The Application of Channeling in Surface and Interface Studies,” S.U.N.Y. (Albany) (1985)
- H.-J. Gossmann, “Investigation of Semiconductor Surfaces by High Energy Ion Channeling, S.U.N.Y. (Albany) (1984)
- R. Haight, “Ion Scattering Studies of Si Surfaces and Interfaces: Structure and Neutralization,” S.U.N.Y. (Albany) (1983)
- N. Cheung, “Channeling Studies of Silicon Interfaces,” Cal. Inst. of Tech. (1980)
- T.E. Jackman, “Selected Topics in Ion-Solid Interactions,” University of Guelph (1979)

PROFESSIONAL ACTIVITIES:

Government

DOE Committee of Visitors, Division of Material Science and Engineering (2015-)
Brookhaven National Lab-Center for Functional Nanomaterials Review Committee (2013-)
Brookhaven National Lab-Center for Functional Nanomaterials Proprietary Proposal Review Panel (PPRP) (2013-)
Oak Ridge National Lab – LDRD Selection Com. (2004-2005)
Sandia Materials Science Review Bd. (2003)
Army Research Office, Physics Coordinating Grp. (1997, 2000)
International Review Panel, Grad. School in Microelectronics, Danish Res. Acad. (1998)
Danish National Research Foundation, Research Center Evaluation Panel (1997)
Chairperson, Scientific Council, Danish Microelectronics Ctr. (1991-1997)

Scientific Advisory Council, Institute for Semiconductor Physics, Frankfurt, Ger. (1996-2003)
Livermore National Lab, Physics Div. Advisory Panel (1996-1999)
Consultant - Oak Ridge National Lab, Solid State Div. (1996-)
Sandia National Labs, Physical & Chemical Sciences External Peer Review Bd. (1996)
Naval Res. Lab - Radiation Div. Review Panel (1992)
Nat'l. Sci. Found. - MRL Selection Panel (1991)
Consultant - Livermore Nat'l Lab. (1989-2000)
D.O.E. Advisory Panel: Heteroepitaxy (1989)
Nat'l Sci. Found. Sci. and Tech. Ctr. Selection Panel (1988)
Univ. of Chicago Review Committee for Argonne Nat'l Lab. (Physics Div.) (1983-1986)
Chairperson, SEMATECH Com. on Critical Materials for Elec. Tech.

Societies

Awards Committee, Materials Research Society (2014)
Judging Panel – National Faculty Blavatnik Awards for Young Scientists (2014-)
General Committee of the Physical Electronics Conference (PEC)
Program Committee for the 2012 Gordon Research Conference in Semiconductors
A.P.S Budget Committee (2008-2009)
A.P.S Executive Board (elected 2007-2009)
A.P.S. Exec. Council (elected 2006-2009)
AAAS Fellow Electorate Nominating Committee Member (2006-2009)
A.P.S. Committee on Committees (2007-2008)
A.P.S. Chair Committee on Committees (2009-)
Amer. Phys Soc. Councilor (elected 2004-2008)
A.P.S. Comm. – Davison-Germer Prize (2004-2006)
A.P.S Task Force on Counter-Terrorism (2002-2003)
Chair, Div. of Materials Physics, A.P.S. (1999-2001, elected 1999)
A.P.S. Comm. On Careers and Professional Development (2001-2003)
Ed. Bd. Physics Today / Book Selection (1998-2001)
Am.Vac. Soc., Appl. Surf. Sci. Div., Exec. Comm. (1998-2001)
Am. Instit. of Phys., Com. on Book Pub. (1991-1997)
Am. Vac. Soc., Electronic Materials Div., Exec. Com. (1988-1991, 1996-1998)
Am. Phys. Soc., Sec.-Treas., Div. of Condensed Matter Physics (1993-1995)
Matls. Res. Soc.-Long Range Planning Com. (1989-1992)
Trustee, American Vacuum Society (1986-1988)
Member of Am. Vac. Soc., Mat. Res. Soc., Am. Cer. Soc., I.E.E.E., Am. Phys. Soc.
Chairman, Surf. Sci. Div., Am. Vac. Soc. (1985-1987); A. V. S. Exec. Com. (1981-1987)
Councilor, Materials Research Society (1984-1986)
Chairman, Materials Research Society Education Committee (1983)
Materials Research Society Program Committee (1980, 1981-1986)

International Conference Committees

International Committee on the Physics of Semiconductors (2015-)
International Meeting on Recent Developments in the Study of Radiation Effects in Matter, Int. Org. Com. (2006-)
"Surface Engineering with Ceramics" of CIMTEC 2006.
1st International Symposium on Transparent Conducting Oxides, Int. Advisory Com. (2006-)
"Surface Engineering with Ceramics" of CIMTEC 2006.
27th Int'l. Conf. – Physics of Semiconductors – Program Com. (2003-2004)
Int. Workshop on Nanostructures for Electronics and Optics (2001-)
Ion Beam Modification of Materials (2000-)
Shanghai Conf. on Advanced Silicon Materials (1999)
NATO Advanced Research Workshop on Si/SiO₂, St. Petersburg (1996)
Int. Conf. on Formation of Semiconductor Interfaces (1993-1996)
Physics and Chem. of Semi. Interfaces-Organizing Com. (1991-1995)
Int. Conf. on Solid Films and Surfaces (1987-1994)

Int. Conf. on the Structure of Surfaces (1983-1989)
Ion Beam Analysis Conf. (1978-2000)
Atomic Collisions in Solids Conference (1977-1985)
International Conference on Nano and Microelectronics (Jan. 2008)

AT&T Bell Laboratories

Patent Initiatives (1993-1996)
Patent Selection Com. (1993-1996)
Central Diagnostics Bd. (1991-1996)
Radiation Protection Com. (1991-1996)
Recruiter, Mat. Sci. and Eng. Dept., Cornell University (1987-1996)
Advisory Council on Research, AT&T Bell Labs (1983)
Mentor — Bell Labs Co-Op. Research Program (For minority science students)

Vanderbilt University

Search Com. for the H. Fort Flowers Chair in Mech. Eng. (2004-2005)
Search Com-Condensed Matter Theory (2004-2005)
Vanderbilt – Fisk Com. (2003-2005)
Dean’s Ad-hoc Committee (2002-2003)
Chair, Physics Dept. Search for Condensed Matter Physicist (2002-2003)
Director, Vanderbilt Institute for Nanoscale Science and Engineering (2001-)
Interdisciplinary Materials Science Program, Co-Director (1999-2004)
Free Electron Laser, Director, Search Com. (1999-2000)
Biophysics Search Selection Comm. (1998-2000)
University Research Council (1997-2000)
Matls. Sci. and Eng. Prog. Com. (1997-1999)

Rutgers, The State University of New Jersey

Graduate Faculty - Full Membership (2011 -)
Governing Board, Center for Innovative Ventures for Emerging Technologies (2007-)
Dean of Engineering Search Committee (2008)
Intellectual Property/Patent Overview Committee (2008 -)
President’s Administrative Council (2007 -)

PUBLICATIONS — L. C. FELDMAN

BOOKS

1. “Fundamentals of Nanoscale Film Analysis”, T.L. Alford, L.C. Feldman, and J.W. Mayer, Springer (2007); translated into Japanese, (2008), translated into Russian (2012).
2. “Electronic Materials Thin Film Science,” K. Tu, J.W. Mayer and L.C. Feldman, Macmillan Publ. N.Y. (1992).
3. “Fundamentals of Surface and Thin Film Analysis,” L.C. Feldman and J.W. Mayer, North Holland-Elsevier, N.Y. (1986); translated into Japanese, Kaibundo Publishing (1988); translated into Russian, MIR Publishing (1989).
4. “Materials Analysis by Ion Channeling,” L.C. Feldman, J.W. Mayer and S.T. Picraux, Academic Press, N.Y. (1982).

CHAPTERS IN EDITED VOLUMES/REVIEW ARTICLES

1. “Materials Science with Ion Beams”, Forward, Springer, 2010

2. "Handbook of Instrumentation and Techniques for Semiconductor Nanostructure Characterization", R. Haight, F.M. Ross & J.B. Hannon, Forward by L.C. Feldman, World Scientific / Imperial College Press (2011).
3. "Silicon Dioxide-Silicon Carbide Interfaces: Current Status and Recent Advances", (Chapter 20), Sarit Dhar, Sokrates T. Pantelides, John R. Williams and Leonard Feldman, Taylor and Francis (2008).
4. "Introduction: The Si/SiO₂ System," L.C. Feldman, in "Fundamental Aspects of Silicon Oxidation," Y. Chabal, Ed., Springer, Berlin (2000).
5. "Ordered δ Doping," R.L. Headrick, L.C. Feldman and B.E. Weir in "Delta Doping," ed. by E.F. Schubert, Cambridge University Press, Cambridge, MA (1996).
6. "High Energy Ion Scattering," L.C. Feldman in "Surface Science — The First Thirty Years," ed. by C.B. Duke, North-Holland, Amsterdam (1994).
7. "Clustering on Surfaces," Martin Zinke-Allmang, L.C. Feldman and Marcia H. Grabow, Surface Science Reports **16**, No. 8 1992.
8. "Rutherford Backscattering and Nuclear Reaction Analysis," in "Ion Spectroscopies for Surface Analysis," ed. by A.W. Czanderna and D.H. Hercules, Plenum Press, New York (1991).
9. "Ion Scattering from Surfaces and Interfaces," L.C. Feldman, in "Ion Beams for Materials Analysis," ed. by J.R. Bird and J.S. Williams, Academic Press, New York (1988).
10. "The Auger Effect," L.C. Feldman, Article in McGraw-Hill Encyclopedia of Science and Technology.
11. "Rutherford Backscattering and Channeling Analysis of Interfaces and Epitaxial Structures," L.C. Feldman and J.M. Poate, Ann. Rev. of Mat. Sci. **12** (1982).
12. "High Energy Ion Scattering," L.C. Feldman, in Appl. Atomic Collision Physics, ed. by S. Datz, Academic Press (1983).
13. "MeV Ion Scattering for Surface Structure Determination," L.C. Feldman, chapter in "Surface Science: Recent Progress and Perspectives," ed. by R.S. Vanselow and W. England, C.R.C. Press, Cleveland Press, Cleveland, Ohio (1981).
14. "Selected Low Energy Nuclear Reaction Data," by L.C. Feldman and S.T. Picraux, in "Handbook for Ion Beam Analysis," ed. by J.W. Mayer and E. Rimini, Academic Press, New York (1977).
15. "Ion Induced X-Rays as Applied to Solids, J.A. Cairns and L.C. Feldman, Chapter in *New Uses of Low Energy Accelerators*, ed. J.F. Ziegler, Plenum Press, New York (1975).

PROCEEDINGS EDITOR

1. "Thin Film Processing and Characterization of High Temperature Superconductors," ed. by J.W. Harper, R.J. Colton and L.C. Feldman, Amer. Inst. of Physics. Conf. Proc. No. **165**, New York (1988).

PATENTS

1. Method and Apparatus for Surface Characterization and Process Control Utilizing Radiation from Desorbed Particles, L.C. Feldman, J.S. Kraus, N.H. Tolk, M. Traum and J.C. Tully, U.S. Patent No. 4,393,311 (1983).

2. High Resistivity Group III-V Compounds by Helium Bombardment, L.C. Feldman, M.W.Focht, A.T. Macrander and B. Schwartz, Statutory Invention Registration, No. H147 (Nov. 1986).
3. Method for Epitaxially Growing $\text{Ge}_x\text{Si}_{1-x}$ Layers on Si, J.C. Bean, L.C. Feldman, A.T. Fiory, U.S. Patent No. 4,529,455.
4. Semiconductor Device Including Alternating Ordered Layers, J. Bevk, L.C. Feldman, A.M. Glass and T.P. Pearsall (1986).
5. Device Including a Semiconductor/Dielectric Interface and Method of Device Manufacture, J. Bevk, L.C. Feldman and A. Ourmazd, U.S. /19.03.07 Patent No. 27708.
6. Semiconductor Heterostructures Having $\text{Ge}_x\text{Si}_{1-x}$ Layers on Si Utilizing Molecular Beam Epitaxy, J.C. Bean, L.C. Feldman and A.T. Fiory, U.S. Patent No. 4,861,393 (1989).
7. Vertical Cavity Surface Emitting Lasers with Semitransparent Metallic Mirrors and High Quantum Efficiencies, D.G. Deppe, L.C. Feldman, R.F. Kopf, E.F. Schubert, L.W. Tu and G. Zydik, U.S. Patent No. 5,068,868 (1991).
8. Fabrication of Electronic Devices, L.C. Feldman, G. Higashi, C. Mak, B. Miller, European Pt. Nr. 92308696.1, U.S. Patent No. 5,308,796.
9. Erbium Doped Optical Devices, L.C. Feldman, M.J. Hunt, D.C. Jacobson, E.F. Schubert, A. Vredenberg, R. Wong and G. Zydik, U.S. Patent No. 5,249,195.
10. Method to Fabricate Conductive Lines in Diamond, L.C. Feldman, R. Kalish, A. Katz and N. Moriya, U.S. Patent No. 5334306 (1994).
11. Method for Making a Semiconductor Device, Including Diffusion Control, J. Bevk, L.C. Feldman, H.J.-Gossmann, H. Luftman and R.H. Yan, U.S. Patent No. 5,500,391 (March 1996).
12. Reverse Side Etching for Producing Layers with Strain Variation, L.C. Feldman and N. Moriya, U.S. Patent No. 5,532,510 (July 2, 1996).
13. Inclusion of Nitrogen at the Silicon Dioxide - Silicon Carbide Interface for Passivation of Interface Defects, G.Y. Chung, M. Di Ventura, L.C. Feldman, J.K. McDonald, S.T. Pantelides, C.C. Tin, R.A. Weller, J.R. Williams, U.S. Patent No. 6,939,756 (2005).
14. Inclusion of Nitrogen at the Silicon Dioxide-Silicon Carbide Interface for Passivation of Interface Defects, G.Y. Chung, M. Di Ventura, L.C. Feldman, J.K. McDonald, S.T. Pantelides, C.C. Tin, R.A. Weller, and J.R. Williams, U.S. Patent No.7,235,438 (2007).
15. A System for Growing Small Populations of Living Cells and Monitoring Their Physiological State, J.P. Wikswo, F.J. Baudenbacher, T.A. Bapty, L.C. Feldman, D. Granner, G. Karsai, O. McGuinness, D. Osterman, D. Piston and A. Prokop (filed October 1, 2000).
16. Devices with Small Scale Channels and the Fabrication Thereof by Etching, J.M. Ramsey, L. C. Feldman, T.E. Haynes, and D.M. Zehner (US Application No. 10/903,310, refiled Dec. 2004).
17. Method for Exfoliation of Silicon Carbide, J.A. Bennett, O.W. Holland, M. Budde, D.K. Thomas and L.C. Feldman (Provisional Application filed May 25, 2000).
18. Nanostructured Material Transport Devices and Their Fabrication by Application of Molecular Coatings to Nanoscale Channels (Disclosure #0931, U.T.-Batelle, July 2003).

19. Apparatus and Methods for Instrumenting and Controlling a Single Cell as a Programmable Microsystem, and High Content Toxicology Screening Using a Massively Parallel, Multi-Phasic Cellular Biological Activity Detector, J.P. Wikswow, F.J. Baudenbacher, T.A. Bapty, R. R. Balcarcel, L.C. Feldman, D. Granner, G. Karsai, O. McGuinness, D. Osterman, D. Piston, A. Prokop, D. Cliffler and J. Gilligan, *Prov. App. filed Aug. 6, 2001, U.S. Serial No. 60/310,652.*
20. Apparatus and Methods for Detecting Motor Vehicle Drivers Using Cellular Phones, T. Holman, L.C. Feldman, R. Schrimpf (*Prov. Application filed July 10, 2001.*)
21. A Subwavelength Hole Array Controllable by a Semiconductor-Metal Phase Transition and Optical Transmission Through the Same, E.J. Donev, L.C. Feldman, R. F. Haglund Jr., R. Lopez, and J.Y. Suh, *Pending Oct 31, 2005, U.S. Serial No. 60/731,695.*
22. Inclusion of Nitrogen at the Silicon Dioxide-Silicon Carbide Interface for Passivation of Interface Defects, G. Y. Chung, C. C. Tin, J. R. Williams, K. McDonald, M. De Ventra, R. A. Weller, S. T. Pantelides and L. C. Feldman, *U.S. Patent No. 7,727,340 (2010).*
23. Semiconductor Devices Including Polar Insulation Layer Capped by Non-Polar Insulation Layer, J. R. Williams, T. F. Isaacs-Smith, A. C. Ahyi, L. C. Feldman, Y. K. Sharma, *U.S. Patent No. 9,117,817 (2015).*
24. Semiconductor Devices Including Polar Insulation Layer Capped by Non-Polar Insulation Layer, J. R. Williams, A. C. Ahyi, T. F. Isaacs-Smith, Y. K. Sharma, L. C. Feldman, *U.S. Patent No. 9,117,817 B2 (2015).*
25. Semiconductor Devices Including Polar Insulation Layer Capped by Non-Polar Insulation Layer, John R. Williams, Tamara F. Isaacs-Smith, Ayayi Claude Ahyi, Leonard C. Feldman, Yogesh K. Sharma *U.S. Patent No.: 9,362,367 (2016)*

SCIENTIFIC ARTICLES

1. A Diffusion Model of Escape from Channels, L.C. Feldman, B.R. Appleton and W.L. Brown, "Proceedings of the International Conference on Solid State Physics Research with Accelerators," Ed. A.N. Goland, Brookhaven National Laboratory (1967).
2. Experimental Investigations of Feeding-Into and Escape-from Channels, B.R. Appleton, L.C. Feldman and W.L. Brown, "Proceedings of the International Conference on Solid State Physics Research with Accelerators," Ed. A.N. Goland, Brookhaven National Laboratory (1967).
3. Interpretation of Emergent Star Pattern Distributions for MeV Protons Transmitted through Single Crystals, L.C. Feldman and B.R. Appleton, *Rad. Eff.* **2**, 65 (1969).
4. Photoluminescence of Oxygen in ZnTe Introduced by Ion Implantation, J.L. Merz and L.C. Feldman, *Appl. Phys. Lett.* **15**, 129 (1969).
5. Uni-Directional Channeling and Blocking: A New Technique for Defect Studies, L.C. Feldman and B.R. Appleton, *Appl. Phys. Lett.* **15**, 305 (1969).
6. Comparison of Average Potential Models and Binary-Collision Models of Axial Channeling and Blocking, J.U. Anderson and L.C. Feldman, *Phys. Rev.* **B1**, 2063 (1970).
7. Determination of Channeling Probability from Transmitted-Particle Energy Spectra, M.R. Altman, L.C. Feldman and W.M. Gibson, *Phys. Rev. Lett.* **24**, 464 (1970).

8. Uni-Directional Channeling and Blocking, B.R. Appleton and L.C. Feldman, "Atomic Collision Phenomena in Solids," Amsterdam, North Holland (1970).
9. Depth Profiles of the Lattice Disorder Resulting from Ion Bombardment of Silicon Single Crystals, L.C. Feldman and J.W. Rodgers, *J. of Appl. Phys.* **41**, 3776 (1970).
10. Ion Implantation of Bismuth into GaP. I. Photoluminescence, J.L. Merz, L.C. Feldman and E.A. Sadowski, *Rad. Eff.* **6**, 286 (1970).
11. Implantation of Bi into GaP. II. Channeling Studies, L.C. Feldman, W.M. Augustyniak and J.L. Merz, *Rad. Eff.* **6**, 293 (1970).
12. Lattice Location Studies of Tl, Pb and Bi in Iron and the Hyperfine Field at Pb in Iron, L.C. Feldman, and E.N. Kaufmann, *Phys. Rev. Lett.* **27**, 1145 (1971).
13. Implantation of Bi into GaP. III. Hot-Implant Behavior, J.L. Merz, D.W. Mingay, W.M. Augustyniak and L.C. Feldman, "Proc. of the II. Intern. Conf. on Ion Implantation in Semiconductors," Ed. I. Ruge and J. Graul, Springer-Verlag, New York (1971).
14. Channeling in Iron and Lattice Location of Implanted Xenon, L.C. Feldman and D.E. Murnick, *Phys. Rev.* **B5**, 1 (1972).
15. Investigation of Interstitial Zn Concentrations in Additively Colored ZnO Using the Uni-Directional Channeling and Blocking Technique, B.R. Appleton and L.C. Feldman, *J. Phys. Chem. Solids* **33**, 507 (1972).
16. Use of the Channeling Technique to Locate Interstitial Impurities, J.U. Andersen, L.C. Feldman and E. Laegsaard, *Rad. Eff.* **12**, 219 (1972).
17. Another Measurement of the Polarization of Deuterons Channeled Through Thin Ni Foils, L.C. Feldman, D.W. Mingay and J.P.F. Sellschop, *Rad. Eff.* **13**, 145 (1972).
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