

FEREYDOON NAMAVAR

Professor

Director of Nano-Biotechnology (July 1st 2002-present)
Department of Orthopaedic Surgery and Rehabilitation
College of Medicine
University of Nebraska Medical Center
981080 Nebraska Medical Center
Omaha, NE 68198-5360

Courtesy Professor (December 2005-present)

Department of Electrical Engineering
University of Nebraska-Lincoln

Senior Scientist and

Director of Nanotechnology, Spire Biomedical. (1999-2002)

Senior Scientist and

Manager, Surface Engineering R&D, Spire Biomedical (1994-2000)
Manager Advanced Si-Based Technology, Spire Optoelectronics. (1987-2000)
Bedford, MA

Education

Doctor of Science, Nuclear Physics, *summa cum laude*,
Inst. for Nuclear and Radiation Physics,
Katholieke Universiteit Leuven, Belgium.
B.Sc., Physics, Tehran University, Iran.

Present Research Interests

- Application of nanotechnology in total joint arthroplasty:
 - (i) *Reducing the wear of orthopaedic implants* and revision surgery
 - (ii) *Controlling the bone growth*
- Interaction of stem cells and organisms with micro and nanostructured engineered materials (tissue engineering)
- Effect of electrical stimulation on growth and differentiation of stem cells on nano-engineered surfaces
- Development of smart infection-resistant coatings for orthopaedics and dental implants
- In vitro and in vivo absolute wear measurements of orthopaedic implants
- Development of medical imaging technology by non-ionizing radiation

Research Activities at Spire Corporation

In addition to directing Spire's ion beam research programs; initiation of innovative concepts and ideas for novel layer structures and advanced materials (through government contracts and grants from NSF, DOE, NIH, Air Force, Navy, Army, NASA, DNA, DARPA, and BMDO; and through industry funding from GM/Caterpillar, TI, and AMAX), including:

Electronics and Optoelectronics:

- Initiation of first (porous) silicon-based visible heterojunction LED for fully integrated silicon-based optoelectronics and displays
- Development of extremely high-temperature n-GaN/p- β -SiC/n-GaN heterojunction bipolar transistors on Si-on-insulator substrates
- Development of compliant substrate for CVD/MOCVD growth of β -SiC and/or GaN for high temperature electronics and visible waveguides, and for green and blue LEDs,
- Initiation of rare-earth-doped porous Si Infrared LEDs for high speed, fiber-optic communications
- Erbium in wide bandgap semiconductors (SiC, GaInP, GaN, AlN) for development of a temperature stable IR laser
- Silicon-on-insulator (SOI) materials produced by SIMOX and SOS techniques for radiation hard devices
- Waveguides and modulators and optical beamsteering device based on SOI structures
- Ultrathin SOI structures by low energy oxygen implantation for silicon submicron technology and fully depleted device applications
- Buried or surface transition metal silicides to be used in IR detectors and buried conductors for direct energy conversion in space
- Ge, GeSi and GeSiC for epitaxial growth by high-temperature atmospheric pressure CVD (a mass-produced, low-cost technique) for HBT and Optoelectronics applications
- Formation of high-resistivity GaAs by arsenic implantation to reduce side- and back-gating effects, thereby eliminating cross-talk between devices and expanding potential circuit packing densities
- Research of RGB EL device development for silicon-based full-color flat-panel displays

Thin Films and Nanostructures (Alternative Bearing Surfaces):

- Engineered nanocrystals for fabrication of ductile ceramics and superior hard metallic coatings for use in extremely harsh operating conditions by Ion Beam Assisted Deposition (IBAD)
- Nanocrystalline, homometallic Co-Cr coatings on Co-Cr prostheses for increased hardness and wear and corrosion resistance of prostheses and total joint arthroplasty
- Development of non-stick, low surface energy, nanocrystalline quasicrystalline coatings for blood-contacting surface
- Development of flexible graded nanocrystalline (ceramics and plastics) coating for UHMWPE prostheses by IBAD

Related Experience

University of Connecticut - Department of Physics, Storrs, CT

1986-1987 Visiting Associate Professor of Physics
1982-1986 Assistant Professor in Residence
1980-1982 Visiting Assistant Professor of Physics
1979-1980 Postdoctoral Fellow of Physics

Katholieke Universiteit Leuven - Inst. for Nuclear and Radiation Physics, Belgium

1978-1979 Postdoctoral Research Fellow of Physics
1973-1978 Staff Scientist in Nuclear Physics (full-time appointment)

RESEARCH ACTIVITIES AT THE UNIVERSITY OF CONNECTICUT: Nuclear and solid state physics and materials science including ion beam modification and analysis of materials related to such problems such as compound (alloy) formation, buried silicides, buried insulators, sputtering, diffusion, gettering, adhesion, corrosion, hardness, and polymers. Ion beam mixing and interfacial problems for deposited thin metal films on semiconductor, insulator, and polymer substrates. The aims of this research were to characterize (by ion beam techniques) the physical and chemical modification of the near surface region of target systems, to understand the mechanisms involved in ion beam-related compound formation, and to determine the compositional and structural dependence of implanted layers on dose, dose rate, temperature, and impurities.

RESEARCH ACTIVITIES AT THE UNIVERSITY OF LOUVAIN: Hyperfine interaction and radiation damage studies for a variety of implanted (radioactive isotope) metallic systems via Mossbauer, beta-gamma, and gamma-gamma perturbed angular correlation, nuclear moments (magnetic dipole and electric quadrupole) and short lifetime (pico and nanosecond regions) measurements, beta and gamma-spectroscopy, and EXAFS techniques.

PATENTS

Additional and new claims "Nano-crystalline, Homo-metallic, Protective Coatings," Fereydoon Namavar, United States Patent Application number: 20060282172, December 14, 2006.

"Nano-crystalline, Homo-metallic, and Protective Coatings" F. Namavar, U.S. Patent No. 7,048,767 issued May 23, 2006.

"SiC/III-V Nitride Heterostructures on SiC/SiO₂/Si for Optoelectronic Devices," R. Soref and F. Namavar, U.S. Patent No. 5,880,491, issued March 9, 1999.

"Optoelectronic Switching and Display Device with Porous Silicon," F. Namavar, N.M. Kalkhoran, and H.P. Maruska, U.S. Patent No. 5,272,355 issued Dec. 21, 1993.

"High Performance GaAs Devices and Method," F. Namavar and N.M. Kalkhoran, U.S. Patent No. 5,436,499 issued July 25, 1995.

“Wavelength Selective Photodetector,” N.M. Kalkhoran and F. Namavar, U.S. Patent No. 5,726,440 issued Mar. 10, 1998.

“Multi-band Spectroscopic Photodetector Array,” N.M. Kalkhoran and F. Namavar, U.S. Patent No. 5,671,914 issued Sep. 30, 1997.

MEDIA REPORTS

SCIENCE, **First Blush for Integrated Light Emitter**, 274 p 1465 29 Nov 1996

Laser Focus World, “**Erbium-doped Porous Silicon Emits at 1.54 μm ,**” September 1996

Electronic Engineering Times, “**Waveguide Uses Cobalt Implants,**” Dec. 5, 1994

III-Vs Review, “**Spire Erbium-doped Porous Si for IR LEDs**”, p.10, August 1994

Solid State Technology, Tech Briefs, p.40, July 1994

Laser Focus World, Newsbreaks “**Erbium-doped Porous Silicon Luminescence at 1.54 microns**”, p.13, July 1994

Photonics Spectra, Technology World Briefs “**Spire Reports New Si-based Infrared LED,**” p.50, June 1994

Advanced Coatings & Surface Technology, “**Porous Si Emits Strong IR at Room Temperature**”, p.5, June 1994

III-Vs Review, “**Spire Si-based LED,**” p.54, June 1994

Advanced Materials, “**Erbium-Implanted Porous Si,**” June 1994

Lasers & Optronics, Technology Track “**Er-doped porous Silicon**” 1994

Laser Focus World, “**Silicon Wafer Holds Buried Optical Waveguide,**” December 1993

Ballistic Missile Defense Organization, Technology Applications Report 1993 “**BMDO SBIR Spurs Breakthrough in Silicon Light Emission**”, p.27, December 1993

Laser Focus World, Technology Update “**Silicon LEDs Could Provide Light for Optical Interconnections,**” p.167, July 1992

Electronic Engineering Times, “**Spire's Breakthrough: the first silicon LED,**” p.4, May 25, 1992

Scientific American, Science and Business, “**Holey Silicon,**” p. 102, March 1992

Sensors, Research and Developments “**Visible EL Detected In Solid-state Si Devices,**” p.7, March 1992

Science R&D, R&D in Brief “**Electricity Makes Silicon Glow,**” p.5, January 1992

Lasers & Optronics, NewsFronts “**Porous Silicon Emits Electroluminescence**”, p.8, January 1992

SDI High Technology Update, “**A Bright Future for LEDs**”, p.7, Vol 2, No.3, 1992

Science, "Feverish Materialism in Snowy Boston," p.1731, December 20, 1991

Science News, Research Notes "Electricity makes Porous Silicon Glow," p.399, December 14, 1991

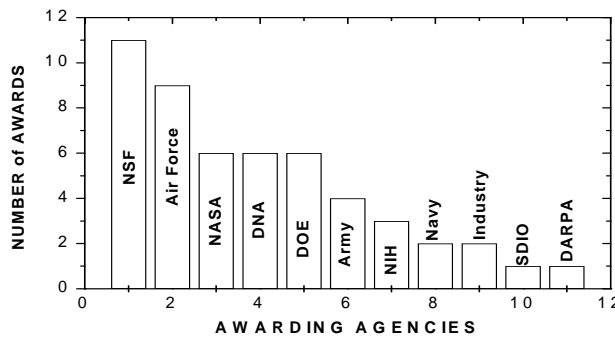
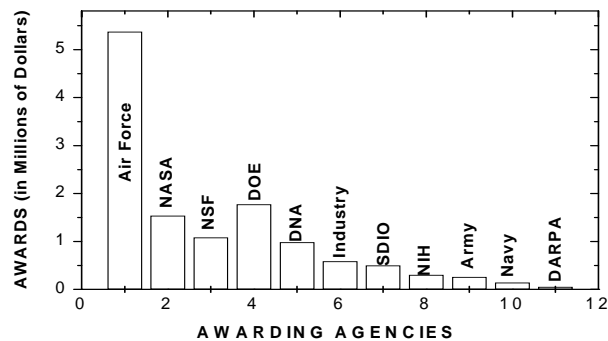
Wall Street Journal, Technology "Research Sheds Light on Silicon For Use in Superfast Transmissions," December 6, 1991

AWARDS SUMMARY

- Received 54 Grants and Contracts valued at approximately **13.65 million dollars** from government agencies (NSF, DOE, NIH, Air Force, Navy, Army, NASA, DNA, DARPA, and BMDO); and from industry.
- Spire's SPI-PSI 1990 Award for excellence in SIMOX research.
- NASA Tech Brief Award from the NASA Langley Research Center, 1992 for SBIR work on low resistivity CoSi₂ for vertical multijunction photovoltaic cells for laser energy conversion in space.
- NASA Tech Brief Award from the NASA John C. Stennis Space Center, 1999 for SBIR work on Wavelength Selective Photodetector.

GRANT AND CONTRACT AWARDS

NUMBER and TOTAL DOLLAR VALUES of AWARDS from AWARDING AGENCIES



**NON-SMALL BUSINESS INNOVATIVE RESEARCH GRANT & CONTRACT
AWARDS**

Co-Investigator

Title: Nanofabrication Core Facility for Materials and Nanoscience Research

Period of Performance: 7/05 – 6/06

Agency: Nebraska Research Initiative (NRI)

Funding: \$400,000

Co-Investigator

Title: Design of Nanoceramic Materials with Enhanced Wear Resistance and Reduced Brittleness

Period of Performance: 7/04 – 6/08

Agency: Nebraska Research Initiative (NRI)

Funding: \$800,000

Title: Engineered Surfaces for Rolling and Sliding Contacts

Period of Performance: 6/1/95 - 5/31/96

Agency: Caterpillar, Inc.

Funding: \$509,671

Title: Ultra-Thin SOI by Low Energy Oxygen Implantation

Period of Performance: 2/28/90 - 2/28/93

Agency: Air Force

Funding: \$595,880

Title: SOI Mantech (SIMOX subcontract)

Period of Performance: 11/8/89 - 11/8/93

Agency: Air Force /Texas Instruments

Funding: \$1,317,919

(Note: Although F.N. wrote the technical sections of the subcontract, he worked minimally on this program due to other contract commitments at the time of award.)

Title: Radiation Hardened Silicon Junction Field Effect Transistor (JFET) Circuit and Silicon on Insulator (SOI) Technical Development

Period of Performance: 6/13/86 - 8/14/89

Agency: Air Force

Funding: \$2 million

SMALL BUSINESS INNOVATIVE RESEARCH GRANT & CONTRACT AWARDS

Phase II Programs:

Title: Superhard Nanocrystalline Homometallic Co-Cr Coated Prosthesis

Agency: National Institutes of Health

Priority score of 150 on 8/19/2002 (*Coincide with moving to UNMC*)

Period of Performance: 6/2/03-6/4/05

Funding: \$750,000

Title: Functionally Graded, Nanocrystalline, Multiphase, Boron-and-Carbon Based Superhard Coatings

Period of Performance: 6/4/99-3/4/02

Agency: Department of Energy

Funding: \$750,000

Title: Extremely High-Temperature n-GaN/p- β -SiC/n-GaN Heterojunction Bipolar Transistors on Large-Area, Compliant Si-on-Insulator Substrates

<https://www.fastlane.nsf.gov/servlet/showaward?award=9710628>

Period of Performance: 11/1/97 - 4/31/01

Agency: National Science Foundation

Funding: \$297,293

Title: Nanocrystalline, Superhard, Ductile, Ceramic Coatings for Roller-Cone Bit Bearings

Period of Performance: 6/18/97 - 6/31/00

Agency: Department of Energy

Funding: \$749,707

Title: Large-Area Silicon Carbide-on-Insulator for High-Temperature Electronics

Period of Performance: 2/23/96 - 5/30/98

Agency: NASA

Funding: \$585,336

Title: Rare Earth-Doped Porous Si Infrared LEDs for High-Speed Fiber-Optic Communications

Period of Performance: 10/1/94 - 9/30/97

Agency: AFOSR

Funding: \$699,994

Title: Two-Dimensional Guided Wave Spatial Light Controller Based on SIMOX Processing and Germanium-Silicon Alloys

<https://www.fastlane.nsf.gov/servlet/showaward?award=9200540>

Period of Performance: 10/15/92 - 10/31/97

Agency: National Science Foundation

Funding: \$249,791

Title: Silicon-Based Light Emitting Diode
Period of Performance: 7/1/92 - 12/31/94
Agency: Army/SDIO
Funding: \$500,000

Title: SIMOX Radiation Hard Linear Bipolar Structures
Period of Performance: 10/9/91 - 9/15/93
Agency: Air Force
Funding: \$494,565

Title: Development and Design of Vertical Multijunction Photovoltaic Cells with Buried Silicide Interconnections
Period of Performance: 4/16/91 - 7/15/94
Agency: NASA
Funding: \$491,578

Title: Defect Reduction and Back Channel Degradation in SIMOX
Period of Performance: 8/31/90 - 6/30/93
Agency: DNA
Funding: \$487,421

Title: Multiple Ion Implantation of Buried Layers of Silicon-on-Insulator
Period of Performance: 8/14/89 - 3/14/92
Agency: DNA
Funding: \$291,920

PHASE I PROGRAMS

Title: Superhard Nanocrystalline Homometallic Stainless Steel for Seamless Coatings
Period of Performance: 11/2/01-11/2/02
Agency: NASA, Phase 1 STTR
Funding: \$100,000

Title: Nanocrystalline Superhard Homometallic Films for Replacement of Ceramic Hard Coatings
<https://www.fastlane.nsf.gov/servlet/showaward?award=0128330>
Agency: NSF, Phase 1 SBIR
Funding: \$99,983

Title: Quasicrystalline, Nanostructured, Multiphase Coatings for Reduced Friction and Wear
Period of Performance: 10/1/2000 - 12/30/2000
Agency: Air Force
Funding: \$100,000

Title: Highly Adherent, Graded Films on Co-Cr for Reduced UHMWPE Wear
Period of Performance: 3/1/2000 - 4/30/2001
Agency: National Institutes of Health
Funding: \$100,000

Title: Functionally Graded, Nanocrystalline, Multiphase, Boron-and-Carbon Based Superhard Coatings.
http://www.science.doe.gov/sbir/awards_abstracts/sbir/cycle17/phase1/150.htm
Period of Performance: 9/4/99-3/4/00
Agency: Department of Energy
Funding: \$99,923

Title: Flexible, Graded Nanocrystalline Coating for UHMWPE Prostheses
Period of Performance: 11/1/99 - 4/30/01
Agency: National Institutes of Health
Funding: \$100,000

Title: Superhard, Nanocrystalline Co-Cr Coated Co-Cr Prostheses
Period of Performance: 9/30/98 - 5/31/99
Agency: National Institutes of Health,
Funding: \$99,999

Title: Silicon Carbide on Insulator Integrated Optics for Room/High-Temperature Sensor Systems
Period of Performance: 4/29/97 - 10/29/98
Agency: U.S. Army Space & Strategic Defense Command,
Funding: \$59,789

Title: Nanocrystalline, Superhard, Ductile, Ceramic Coatings for Roller-Cone Bit Bearings
Period of Performance: 8/13/96 - 3/6/97
Agency: DOE
Funding: \$74,962

Title: Carbon Nitride for Superhard Coatings
<https://www.fastlane.nsf.gov/servlet/showaward?award=9560591>
Period of Performance: 3/1/96 - 8/31/96
Agency: National Science Foundation
Funding: \$74,926

Title: Ultrathin SiC-on-Insulator (SiCOI) for ALE Growth of Low-Defect GaN
<https://www.fastlane.nsf.gov/servlet/showaward?award=9560131>
Period of Performance: 2/1/96 - 10/31/96
Agency: National Science Foundation
Funding: \$74,950

Title: Carbonized Ultrathin Si on SiO₂ (SiCOI): A Compliant Substrate for Growth of Epitaxial GaN and AlN

Period of Performance: 10/24/95 - 4/30/96

Agency: Office of Naval Research

Funding: \$68,577

Title: Vertical Cavity Surface Emitting LED/Laser Based on Er-doped Porous Poly-Si on Glass Substrates

Period of Performance: 1/2/95 - 11/30/95

<https://www.fastlane.nsf.gov/servlet/showaward?award=9461668>

Agency: National Science Foundation

Funding: \$64,920

Title: Large Area Silicon Carbide on Insulator Substrates for High Temperature Electronics

Period of Performance: 12/15/94 - 6/15/95

Agency: NASA

Funding: \$69,991

Title: Si-based Blue Light-Emitting Diode

Period of Performance: 8/27/92 - 8/8/94

Agency: Office of Naval Research

Funding: \$74,511

Title: Visible and Infrared (1.54 μm) LED based on Er-doped Porous Si

Period of Performance: 7/1/93 - 12/31/93

Agency: AFOSR

Funding: \$72,661

Title: Silicon-based Blue Light-emitting Diode

Period of Performance: 5/1/93 - 1/31/94

<https://www.fastlane.nsf.gov/servlet/showaward?award=9261385>

Agency: National Science Foundation

Funding: \$70,000

Title: High Resistivity Ion-Implanted GaAs Buffer layers for Integrated Photonics

Period of Performance: 4/15/92 - 10/14/92

Agency: U.S. Army

Funding: \$49,338

Title: A New Si-based Full Color Flat Panel Display Technology

Period of Performance: 2/1/92 - 8/31/92

Agency: NASA

Funding: \$48,962

Title: GaAs Buffer Layers by Ion Implantation and MOCVD
Period of Performance: 1/15/92 - 9/30/92
<https://www.fastlane.nsf.gov/servlet/showaward?award=9160122>
Agency: National Science Foundation
Funding: \$49,960

Title: Silicon Flat Panel Displays
Period of Performance: 1/15/92 - 9/30/92
<https://www.fastlane.nsf.gov/servlet/showaward?award=9161265>
Agency: National Science Foundation
Funding: \$49,993

Title: Novel SOI Structures for Energy Selective VUV and Soft X-Ray Detectors
Period of Performance: 9/7/91 - 3/30/92
Agency: DOE
Funding: \$49,778

Title: SiGe and Si Quantum Wires for Efficient, Room Temperature, Tunable Luminescence
Period of Performance: 7/1/91 - 12/31/91
Agency: US Army Research Office
Funding: \$49,980

Title: SIMOX Structures for Optical Waveguides and Electro-Optic Devices in Silicon
Period of Performance: 1/1/91 - 9/30/91
<https://www.fastlane.nsf.gov/servlet/showaward?award=9060220>
Agency: National Science Foundation
Funding: \$49,861

Title: MOCVD for Low-Cost TFEL Flat Panel Display Manufacture
Period of Performance: 6/26/90 - 12/26/90
Agency: DARPA
Funding: \$53,386

Title: Silicon-Germanium and Silicon-Tin Waveguides for Heterostructure Optoelectronic Devices
<https://www.fastlane.nsf.gov/servlet/showaward?award=8961379>
Period of Performance: 1/1/90 - 9/30/90
Agency: National Science Foundation
Funding: \$49,998

Title: Development of Vertical Multijunction Photovoltaic Cells with Buried Silicide Interconnections
Period of Performance: 12/20/89 - 7/20/90
Agency: NASA
Funding: \$49,941

Title: Very Low Defect SIMOX for Analog Devices with Neutron Tolerance
Period of Performance: 8/16/89 - 3/30/90
Agency: HQ Ballistic Systems Division-AFSC
Funding: \$48,500

Title: High Efficiency Soft X-ray and Vacuum Ultraviolet Detectors
Period of Performance: 8/16/89 - 3/7/90
Agency: DOE
Funding: \$49,967

Title: Low Cost Improved SIMOX Material by High-Current-Density, High-Temperature Implantation
Period of Performance: 8/9/89 - 3/9/90
Agency: DNA
Funding: \$49,876

Title: Ion Implanted PtSi Substrates for Radiation-Hard MWIR Focal Plane Arrays
Period of Performance: 8/3/89 - 2/3/90
Agency: Air Force
Funding: \$49,192

Title: Reduction of Defects in Silicon-on-Insulator Material by Growth of Ge-doped Epitaxial Silicon
Period of Performance: 6/12/89 - 1/12/90
Agency: SDIO/ DNA
(60133) Funding: \$49,800

Title: Reduction of Defects in SOS Material by Ion Implantation of Ge for Application to Bipolar Technology
<https://www.fastlane.nsf.gov/servlet/showaward?award=8861225>
Period of Performance: 1/1/89 - 6/30/89
Agency: National Science Foundation
(60125) Funding: \$49,777

Title: Defect Reduction in SIMOX Wafers
Period of Performance: 9/12/88 - 4/11/89
Agency: DNA
(60120) Funding: \$53,598

Title: Multiple Ion Implantation for Buried Layers
Period of Performance: 8/26/87 - 3/26/88
Agency: DNA
Funding: \$53,642

INDUSTRIALLY-FUNDED SMALL BUSINESS INNOVATIVE RESEARCH GRANT & CONTRACT AWARDS

Title: High Temperature Oxidation-Resistant Coating for Mo by Ion Implantation
Period of Performance: 1/12/88 - 8/30/88
Agency: AMAX Corp
Funding: \$75,000

SBIR grants for which Fereydoon Namavar is Program Manager:

Title: Reliable Fire Detection Systems with Low cost SiC-Based Solar Blind UV Photodiodes
Period of Performance: 10/31/96 - 5/1/97
Agency: U.S. Army Research Office
Funding: \$99,939.60
PI: Nader Kalkhoran

Title: Low Cost, Low Noise, Filterless Solar-blind Ultraviolet Detectors on Silicon-on-Insulator Structures for Hydrogen Fire Monitoring
Period of Performance: 3/12/96 - 3/11/98
Agency: NASA
Funding: \$290,000
PI: Nader Kalkhoran

PUBLICATIONS

Government Publications

F. Namavar, P. Colter, H. Karimy, E. Tobin, C. Jollimore, and M. Yoganathan, "Nanocrystalline, Superhard, Ductile Ceramic Coatings for Roller-cone Bit Bearings," *Proc. Geothermal Program Review XV, The Role of Research in the Changing World of Energy Supply*, DOE/EE-0139, 5-47 (1997).

F. Namavar, "Defect Reduction and Back Channel Degradation in SIMOX," Defense Nuclear Agency, Alexandria, VA, Technical Report, DNA-TR-93-102, August 1994.

F. Namavar, "Ion Implanted PtSi Substrates for Radiation-Hard MWIR Focal Planes," Rome Laboratory, Griffiss AFB, NY, Final Technical Report, RL-TR-94-15, April 1994.

F. Namavar, "Ultra-thin SOI by Low Energy Oxygen Implantation," Phillips Laboratory, Hanscom AFB, MA, Final Report, PL-TR-93-2265, September 1993.

F. Namavar, "Silicon-on-Insulator (SOI) Technical Development," Rome Laboratory, Griffiss AFB, NY, Final Technical Report, RL-TR-91-175, August 1991.

Related to Nano-Biotechnology and environment

“Lotus Effect in Engineered Zirconia.” Namavar, F.; Cheung, C.L.; Sabirianov, R.F.; Mei, W.N.; Zeng, X.C.; Wang, G.; Haider, H. and Garvin, K.L. *Nano Letters*, ASAP Article, 10.1021/nl072147v, Web Release Date: March 14, 2008.
<http://pubs.acs.org/cgi-bin/abstract.cgi/nalefd/asap/abs/nl072147v.html>

“Thermal stability of nanostructurally stabilized zirconium oxide” Namavar, F.; Wang, G.; Cheung, C.L.; Sabirianov, R.F.; Zeng, X. C.; Mei, W.N.; Bai, J.; Brewer, J.R.; Haider, H. and Garvin, K.L. *J. Nanotechnology*, Volume 18, Number 41, 415702 (6pp), Oct. 2007.
<http://www.iop.org/EJ/abstract/0957-4484/18/41/415702>

“Structural Study of Titanium Oxide Films Synthesized by Ion Beam-Assisted Deposition.” Wang, G.; Brewer, J.R.; Namavar, F.; Sabirianov, R.F.; Haider, H.; Garvin, K.L. and Cheung, C.L. *Scanning*, 30, 59–64, 2008.
<http://www3.interscience.wiley.com/journal/114216512/issue>

“Triple smart surfaces for implant devices”, Namavar, F.; Jackson, J.D.; Sharp, J.G.; Gustafson, T.J; Kibuule; L.K, Mann; E.; Bales, T.J., Haider, H. and Garvin, K.L., *proceeding of The 11th Meeting-Seminar of Ceramics, Cells and Tissues topic, “Nanotechnology for Functional Repair and Regenerative Medicine the Role of Ceramics as In Bulk and as Coating”*, edited by Ravaglioli, A. and Krajewski, A., Consiglio Nazionale Delle Ricerche: Faenza, Italy April 2008, p. 26-37.

“Searching for Smart Durable Coatings to Promote Bone Marrow Stromal Cell Growth While Preventing Biofilm Formation” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Mann, E.E.; Bayles, K.; Cheung, C.L.; Feschuk, C.; Varma, S.; Haider, H. and Garvin, K.L. *Mater. Res. Soc. Symp. Proc.* Vol. 954, 2007, Materials Research Society 0954-H04-04.
http://www.mrs.org/s_mrs/sec_subscribe.asp?CID=7582&DID=186829&action=detail

“Preliminary Analysis of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Hard Ceramic Coatings” Jackson, J.D.; Sharp, J.G.; Haider, H.; Garvin, K.L. and Namavar, F. *In Ceramics, Cells and Tissues: materials for scaffolding of biologically engineered systems. Interfaces and interactions on a nanoscale*, edited by Ravaglioli, A. and Krajewski, A. ISTE-CNR, pages 109-118 (2006), Consiglio Nazionale Delle Ricerche P. Aldo Moro, ISBN 88-8080-071-X.

“Applications of nanotechnology for alternative bearing surfaces in orthopaedics.” Namavar, F. *Proceedings of the 8th Ceramics, Cells and Tissues Meeting-Seminar*, Faenza, Italy March, 2003. Volume Edited by A. Ravaglioli and A. Krajewski. ISTE-CNR (December 2003).

Related to Nanocrystalline Ceramics and Metals

”Characterization of titanium chromium nitride nanocomposite protective coatings”. Aouadi, S.M.; Wong, K.C.; Mitchell, K.A.R.; Namavar, F.; Tobin, E.; Mihut, D.M.;

Rohde, S.L. *Applied Surface Science*, 229(1-4) Namavar, F.; Jackson, J.D.; Sharp, J.G.; Varma, S.; Haider, H.; Feschuk C. and Garvin, K.L, 387-394 (2004).

“Titanium boron nitride films grown by ion beam assisted deposition: chemical and optical characterization”, .Aouadi, S. M.; Debessai, M.; Namavar, F.; Wong, K.C.; Mitchell, K.A.R. *Surface and Coatings Technology*, 183(2-3), 369-377 (2004).

“Characterization of Ti-based nanocrystalline ternary nitride films”, Aouadi, S.M.; Chladek, J.A.; Namavar, F.; Finnegan, N.; Rohde, S.L. *Journal of Vacuum Science & Technology, B: Microelectronics and Nanometer Structures*, 20(5), 1967-1973 (2002) .

"Growth and analysis of binary and ternary nitride coatings using spectroscopic ellipsometry." Aouadi, S.M.; Gorishnyy, T.Z.; Rohde, S.L.; Tobin,E.; Namavar, F. Annual Technical Conference Proceedings – Society of Vacuum Coaters 44:9-12, 2001.

"Characterization of CrBN films deposited by ion beam assisted deposition." Aouadi, S.M.; Namavar, F. Tobin, E.; Finnegan, N.; Haasch, R.T.; Nilchiani, R.; Turner, J.A.; Rohde, S.L. *Journal of Applied Physics*, 91(3):1040-1045, 2002.

"Applications of nanotechnology for producing novel superhard bearing surfaces," *award paper* Namavar, F. and Tobin, E.: Alternative Bearing Surfaces in Total Joint Replacement, 4th Annual Symposium, Maui, Hawaii, September 2001.

"Growth and analysis of binary and ternary nitride coatings using spectroscopic ellipsometry." Aouadi, S.M.; Tobin, E.; Namavar, F.; Gorishnyy, T.Z. and Rohde, S.L. 44th SVC Annual Technical Conference Proceedings, Philadelphia, PA (9) (April 2001).

"Characterization of TiBN films grown by ion beam assisted deposition." Aouadi, S.M.; Namavar, F.; Gorishnyy, T.Z., and Rohde, S.L. *Surface and Coatings Technology*, 160(2-3):145-151, 2002.

"Spectroscopic Ellipsometry Study of Ti-Based Nanocrystalline Ternary Nitride Films." . Aouadi, S.M.; Namavar, F. and Rohde, S.L. Submitted to *Appl. Phys. Lett.* (Dec. 2001).

“Engineered nanocrystallites for enhanced performance of ceramic coatings by ion beam assisted deposition.” *invited paper*, Namavar, F.; Haupt, J.; Tobin, E.; Karimy, H.; Trogolo, J.; Colter, P.; Yoganathan, M.; Jollimore, C.; Bricault, R.; Hirvonen, J.P. and Ayer, R. Materials Research Society Symposium Proceedings 438(Materials Modification and Synthesis by Ion Beam Processing):697-708, 1997.

“Grain-size and impurity effects in low-temperature deposition of TiN.” Karimy, H.; Namavar, F.; Tobin, E.; Haupt, J.; Bricault, R.; Hirvonen, J.P. and Ayer, R. Materials Research Society Symposium Proceedings 438(Materials Modification and Synthesis by Ion Beam Processing):709-714, 1997.

“Mechanical and tribological properties of chromium-nitrogen films deposited by ion beam assisted deposition.” Tobin, E.J.; Namavar, F.; Karimy, H.F.; Colerico-Stenstrom, C.; Bricault, R.J.; Haupt, J.; Hirvonen, J.P. and Ayer, R. Materials Research Society Symposium Proceedings 438(Materials Modification and Synthesis by Ion Beam Processing):657-662, 1997.

"Low-temperature (<100-C) growth of AlN by ion beam assisted deposition." Karim, H.; Tobin, E.; Bricault, R.; Cremins-Costa, A.; Colter, P.; Perry, D. and Namavar, F. Materials Research Society Symposium Proceedings 396(Ion-Solid Interactions for Materials Modification and Processing):551-556, 1996.

Related to Epitaxial GaN and SiC on Si and Compliant Substrates, Growth, Doping and Rare Earths

"Defect characterization in 3C-SiC films grown on thin and thick silicon top layers of SIMOX." Hong, M.H.; Chung, J.; Namavar, F.; and Pirouz, P. Materials Science Forum 338- 342(Silicon Carbide and Related Materials Part 1):525-528, 2000.

"Ion-channeling study of the SiC/Si/SiO₂/Si interface." Jiang, W.; Thevuthasan, S.; Weber, W.J. and Namavar, F. Applied Physics Letters 74(23):3501-3503, 1999.

Experimental investigation of cubic to hexagonal ratio for GaN layers deposited on 3C-SiC/Si." Camassel, J.; Vicente, P.; Planes, N.; Allegre, J.; Pankove, J.; Namavar, F. and Montpellier, G.E.S. Physica Status Solidi B: Basic Research 216(1):253-257, 1999.

"Characterization of GaN grown on SiC on Si/SiO₂/Si by metalorganic chemical vapor deposition." Zhou, W.L.; Namavar, F.; Colter, P.C.; Yoganathan, M.; Leksono, M.W. and Pankove, J.I. Journal of Materials Research 14(4):1171-1174, 1999.

"Investigation of porous silicon as a new compliant substrate for 3C-SiC deposition." Namavar, F.; Colter, P.C.; Planes, N.; Fraisse, B.; Pernot, J.; Juillaguet, S. and Camassel, J. Materials Science and Engineering, B: Solid-State Materials for Advanced Technology B61-62:571-575, 1999.

"3C(β)-SiC-on-insulator waveguide structures for modulators and sensor systems." Vonsovici, A.; Reed, G.T.; Josey, M.R.; Routley, P.R.; Evans, A.G.R. and Namavar, F. Proceedings of SPIE 3896(Design, Fabrication, and Characterization of Photonic Devices): 352-359, 1999.

"Transmission electron microscopy study of GaN on SiC on SIMOX grown by metalorganic chemical vapor deposition." Zhou, W.L.; Pirouz, P.; Namavar, F.; Colter, P.C.; Yoganathan, M.; Leksono, M.W.; Pankove, J.I. Materials Science Forum 264-268(Pt. 2 Silicon Carbide, III-Nitrides and Related Materials):1239-1242, 1998.

"TEM study of interfaces and defects in MOCVD-grown GaN on SiC on SIMOX." Zhou, W.L.; Pirouz, P.; Namavar, F.; Colter, P.C.; Yoganathan, M.; Leksono, M.W. and Pankove, J.E. Materials Research Society Symposium Proceedings 482(Nitride Semiconductors):471-476, 1998.

"The doping and characterization of erbium-implanted GaN." Torvik, J.T.; Feuerstein, R.J.; Qiu, C.H.; Pankove, J.I. and Namavar, F. Materials Research Society Symposium Proceedings 482(Nitride Semiconductors):579-584, 1998.

“Photo-, cathodo-, and electroluminescence from erbium and oxygen co-implanted GaN.” Torvik, J.T.; Qiu, C.H.; Feuerstein, R.J.; Pankove, J.I. and Namavar, F. *Journal of Applied Physics* 81(9):6343-6350, 1997.

“Photoluminescence from thin porous films of silicon carbide.” Parkhutik, V.P.; Namavar, F. and Andrade, E. *Thin Solid Films* 297(1-2):229-232, 1997.

“Photoluminescence excitation measurements on erbium implanted GaN.” Torvik, J.T.; Feuerstein, R.J.; Qiu, C.H.; Pankove, J.I. and Namavar, F. *Journal of Applied Physics* 82(4):1824-1827, 1997.

“Luminescence at 1539 nm from erbium and oxygen implanted GaN.” Torvik, J.T.; Qiu, C.H.; Feuerstein, R.J.; Pankove, J.I. and Namavar, F. Conference on Optoelectronic and Microelectronic Materials and Devices Proceedings 394-397, 1997.

“Electroluminescence from erbium and oxygen co-implanted GaN.” Torvik, J.T.; Feuerstein, R.J.; Pankove, J.E.; Qiu, C.H. and Namavar, F. *Applied Physics Letters* 69(14):2098-2100, 1996.

"Comparison of crystalline quality of SiC grown on thin and thick silicon-on-insulator structures." Namavar, F.; Colter, A.; Cremens-Costa, A.; Wu, C.H.; Gagnon, E.; Perry, D. and Pirouz, P. Mat. Res. Soc. Symp. Proc., 423(III-Nitride, SiC and Diamond Materials for Electronic Devices):409-414, 1996.

“Growth of crystalline quality SiC on thin and thick silicon-on-insulator structures.” Namavar, F.; Colter, P.; Cremens-Costa, A.; Wu, C.H.; Gagnon, E.; Perry, D.; Pirouz, P. Materials Research Society Symposium Proceedings 423(III-Nitride, SiC and Diamond Materials for Electronic Devices):409-414, 1996.

“Annealing study of erbium and oxygen implanted gallium nitride.” Torvik, J.T.; Feuerstein, R.J.; Qiu, C.H.; Leksono, M.W.; Pankove, J.I. and Namavar, F. Materials Research Society Symposium Proceedings 422(Rare Earth Doped Semiconductors II):199-204, 1996.

"CVD growth of SiC on ultrathin SOI2: A step towards development of a compliant substrate for SiC and III-V Compounds." Namavar, F.; Colter, P.; Cremens-Costa, A.; Gagnon, E. and Perry, D. Materials Research Society Symposium Proceedings 410(Covalent Ceramics III – Science and Technology of Non-Oxides):357-362, 1996.

"Cathodoluminescence study of erbium and oxygen coimplanted gallium nitride thin films on sapphire substrates." Qiu, C.H.; Leksono, M.W.; Pankove, J.I.; Torvik, J.T.; Feuerstein, J.R. and Namavar, F. *Applied Physics Letters* 66(5):562-564, 1995.

Related to Nanocrystalline Si for Si-based Visible and infrared (1.54 μm) LED's

“Time-resolved photoluminescence spectroscopy of Er-implanted porous silicon.” *Journal of Luminescence* 71(1):13-20, 1997.

- "Integrated temperature sensor in Er-doped silicon." Kewell, A.K.; Reed, G.T. and Namavar, F. *Sensors and Actuators, A: Physical* A65(2,3):160-164, 1998.
- "Correlation between visible and infrared (1.54 μm) luminescence from Er-implanted porous silicon." Wu, X.; Hömmerich, U.; Namavar, F. and Cremins-Costa, A.M. *Appl. Phys. Lett.* 69:13, 1996.
- "Visible and infrared (1.54 μm) emission from Er-implanted porous Si for photonics applications." Namavar, F.; Lu, F.; Perry, C.H.; Cremins, A.; Kalkhoran, N.M. and Soref, R.A. *Journal of Electronic Materials* 25(1):43-49, 1996.
- "A spectroscopic study on the luminescence of Er in porous silicon." Hömmerich, U.; Namavar, F. Cremins, A. and Bray, K.L. *Applied Physics Letters* 68(14):1951-1953, 1996.
- "Correlation between visible and infrared (1.54 μm) luminescence from Er-implanted porous silicon." Wu, X.; Hoemmerich, U.; Namavar, F. and Cremins-Costa, A.M. *Applied Physics Letters* 69(13):1903-1905, 1996.
- "Mechanism of a.c. electrical transport of carriers in freshly formed and aged porous silicon." Parkhutik, V.P.; Matveeva, E.S.; Namavar, F. and Kalkhoran, N. J. *Electrochem. Soc.* 143(12): 3943-3949, 1996.
- "Characterization of visible and infrared (1.54 μm) luminescence from Er-doped porous Si." White, R.; Xu, X.; Hoemmerich, U.; Namavar, F. and Cremins-Costa, A.M. *Materials Research Society Symposium Proceedings 422(Rare Earth Doped Semiconductors II)*:137-142, 1996.
- "Photoluminescence properties of Er-doped porous silicon." Hommerich, U.; Wu, X.; Namavar, F.; Cremins-Costa, A.M.; and Bray, K.L. *Materials Research Society Symposium Proceedings 405(Surface/Interface and Stress Effects in Electronic Material Nanostructures)*:215-220, 1996.
- "Porous Silicon Flat Panel Displays." Kalkhoran, N.M.; Namavar, F. and Maruska, H.P. *of Society of Information Displays*, 3, 1 (1995). 8. "Er-implanted porous Si: A novel material for Si-based infrared LEDs." Namavar, F.; Kalkhoran, N.M.; Maruska, H.P. and Cremins-Costa, A.M. *Materials Research Society Symposium Proceedings 358 (Microcrystalline and Nanocrystalline Semiconductors)*:375-380, 1995.
- "Strong Room-temperature infrared emission from Er-implanted porous Si." Namavar, F.; Lu, F.; Perry, C.H.; Cremins-Costa, A.M.; Kalkhoran, N. and Soref, R.A. *Journal of Applied Physics* 77:4813, 1995.
- "Optoelectronic applications of porous polycrystalline silicon." Kalkhoran, N.M.; Namavar, F. and Maruska, H.P. *Applied Physics Letters* 63(19):2661-2663, 1993.
- "Energy bands in quantum confined silicon light-emitting diodes." Maruska, H.P.; Namavar, F. and Kalkhoran, N.M. *Applied Physics Letters* 63(1):45-47, 1993.

"Silicon nanostructures in silicon based light-emitting devices." Namavar, F.; Pinizzotto, R.F.; Yang, H.; Kalkhoran, N. and Maruska, P. Materials Research Society Symposium Proceedings 298 (Silicon Based Optoelectronic Materials):343-348, 1993.

"Further evidence for quantum confinement in porous silicon." Behrensmeier, R.; Namavar, F.; Amisola, G.B.; Otter, F.A. and Galligan, J.M. Applied Physics Letters 62(19):2408-2410, 1993.

"Theory of porous silicon injection electroluminescence." Maruska, H.P.; Namavar, F.; and Kalkhoran, N.M. Materials Research Society Symposium Proceedings 283 (Microcrystalline Semiconductors: Materials Science & Devices):383-388, 1993.

"Scanning tunneling microscopy of porous silicon surfaces." Amisola, G.B.; Behrensmeier, R.; Galligan, J.M.; Otter, F.A.; Namavar, F. and Kalkhoran, N.M. Proceeding of the US Army Natick Research, Development and Engineering Center Atomic Force Microscopy/Scanning Tunneling Microscopy (AFM/STM) Symposium, pgs 181-188, 1994.

"Scanning tunneling microscopy of porous silicon surfaces." Amisola, G.B.; Behrensmeier, R.; Galligan, J.M.; Otter, F.A.; Namavar, F. and Kalkhoran, N.M. Journal of Vacuum Science and Technology, B: Microelectronics and Nanometer Structures 11(5):1788-1792, 1993.

"Scanning probe microscopy and scanning tunneling spectroscopy of porous silicon." Amisola, G.B.; Behrensmeier, R.; Galligan, J.M.; Otter, F.A.; Namavar, F. and Kalkhoran, N.M. Applied Physics Letters 62(21):2595-2597, 1992.

"High pressure optical investigation of porous silicon." Zhou, W.; Shen, H.; Harvey, J.F.; Lux, R.A.; Dutta, M.; Lu, F.; Perry, C.H., Tsu, R.; Kalkhoran, N.M. and Namavar, F. Applied Physics Letters 61(12):1435-1437, 1992.

"Current injection mechanism for porous-silicon transparent surface light-emitting diodes." Maruska, H.P.; Namavar, F. and Kalkhoran, N.M. Applied Physics Letters 61(11):1338-1340, 1992.

"Photoluminescence spectra from porous silicon (111) microstructures: temperature and magnetic-field effects." Perry, C.H.; Lu, F.; Namavar, F.; Kalkhoran, N.M. and Soref, R.A. Applied Physics Letters 60(25):3117-3119, 1992.

"Visible electroluminescence from porous silicon np heterojunction diodes." Namavar, F.; Maruska, H.P. and Kalkhoran, N.M. Applied Physics Letters 60(20):2514-2516, 1992.

"Near IR and visible photoluminescence studies of porous silicon." Perry, C.H.; Lu, F.; Namavar, F.; Kalkhoran, N.M. and Soref, R.A. Materials Research Society Symposium Proceedings 256(Light Emission for Silicon):153-158, 1992.

"NP heterojunction porous silicon light-emitting diode." Kalkhoran, N.M.; Namavar, F. and Maruska, H.P. Materials Research Society Symposium Proceedings 256(Light Emission for Silicon):89-94, 1992.

Related to Si-Based Integrated Optoelectronic Devices and Component

“Loss measurements for β -SiC-on-insulator waveguides for high-speed silicon-based photonic devices,” Vonsovici A, Reed GT, Evans AGR, Namavar F: Proceedings of SPIE 3630 (Silicon-Based Optoelectronics):115-124, 1999.

“A novel optical phase modulator design suitable for phased arrays,” Jackson SM, Hewitt PD, Reed GT, Tang CK, Evans AGR, Clark J, Aveyard C, and Namavar F: Journal of Lightwave Technology 16(11):2016, 1998.

“Integrated temperature sensor in Er-doped silicon,” Kewell AK, Reed GT and Namavar F: Sensors and Actuators A 65:160, 1998.

“Optical beamsteering using integrated optical modulators,” Jackson SM, Reed GT, Tang CK, Evans AGR, Clark J, Aveyard C, and Namavar F: Journal Lightwave Technology 15(12):2259, 1997.

“Development of a library of low-loss silicon-on-insulator optoelectronic devices,” Tang CK, Kewell AK, Reed GT, Rickman AG, Namavar F: IEE Proceedings: Optoelectronics 143(5):312-315, 1996.

“The effects of Ge concentration on the propagation characteristics of SiGe/Si heterojunction waveguides,” Yang Z, Weiss BL, Shao G, and Namavar F: Journal of Applied Physics, 77, 2254-2257, 1995.

“Silicon-on-insulator optical rib waveguide loss and mode characteristics,” Rickman AG, Reed GT, and Namavar F: IEEE J. Lightwave Technol. 12(10): 1771, 1994.

“Structural and optical properties of SiGe/Si optical waveguide structures,” Weiss BL, Zuoya Y, Shao G, and Namavar F: Mat. Res. Soc. Symp. Proc. 281:461-465, 1993.

“The effects of composition on the spectral loss characteristics of germanosilicon planar waveguide structures,” Materials Research Society Symposium Proceedings 281 (Semiconductor Heterostructures for Photonic and Electronic Applications):461-465, 1993.

“Silicon optical waveguides with buried-CoSi₂ cladding layers,” Soref RA, Namavar F, Kalkhoran NM and Koker DM: Optics Letters 19(17):1319-1321, 1994.

“Wavelength dependent propagation loss characteristics of silicon germanium/silicon planar waveguides,” Weiss BL, Yang Z, and Namavar F: Electronics Letters 28(24):2218-2220, 1992.

“Optical characteristics of planar waveguides in SIMOX structures,” Reed GT, Rickman AG, Weiss BL, Namavar F, Cortesi E, and Soref RA: Materials Research Society Symposium Proceedings 244(Optical Waveguide Materials):387-393, 1992.

“Optical waveguiding in silicon/silicon-germanium/silicon heterostructures,” Namavar F and Soref RA: Journal of Applied Physics: 70(6):3370-3372, 1991.

"Optical waveguides in SIMOX structures," Weiss BL, Reed GT, Toh SK, Soref Ra, and Namavar F: Photonics Tech. Lett., 3:19, 1991.

"Vertically integrated silicon-on-insulator waveguides," Soref Ra, Cortesi E, Namavar F, and Friedman L: Photonics Tech. Lett., 3:22, 1991.

"Optical waveguiding in multiple silicon-on-insulator layers," Cortesi E, Namavar F, and Soref RA: Proc. Int. Conf. Electron. Mater., 2nd:217-222, 1990.

"Vertical 3-D integration of silicon waveguides in a Si-silica-Si-SiO₂-Si structure," Soref RA, Namavar F, Cortesi E, Friedman L and Lareau R: Proceedings of SPIE 1389(Int. Symp. Interconnect Packag., 1990 Bk 1):408-421, 1991.

"Optical waveguiding in a single-crystal layer of germanium-silicon grown on silicon," Soref Ra, Namavar F, and Lorenzo JP: Optics Letters 15(5):270-272, 1990.

"Optical waveguiding in an epitaxial layer of silicon-germanium grown on silicon," Soref RA, Namavar F, and Lorenzo JP: Proceedings of SPIE 1177(Integr. Opt. Optoelectron.):175-184, 1990.

Related to High resistivity GaAs

"Characterization and applications of arsenic-implanted MOCVD-grown GaAs structures," Namavar F, Kalkhoran NM, Cremins A, and Vernon S: Materials Research Society Symposium Proceedings 316(Materials Synthesis and Processing Using Ion Beams):51-56, 1994.

"Formation of arsenide precipitates in gallium arsenide by ion implantation and thermal annealing," Claverie A, Namavar F, and Liliental-Weber Z: Applied Physics Letters 62(11):1271-1273, 1993.

"Arsenic implantation into GaAs: a SOI technology for compound semiconductors," Liliental-Weber Z, Namavar F and Claverie A: Ultramicroscopy 52(3-4):570-574, 1993.

"Semiinsulating gallium arsenide made by arsenic implantation and thermal annealing," Claverie A, Namavar F, Liliental-Weber Z, Dreszer P and Weber ER: Materials Science and Engineering, B: Solid-State Materials for Advanced Technology B22(1):37-40, 1993.

"Lateral and vertical isolation by arsenic implantation into MOCVD-grown gallium arsenide layers," Namavar, F; Kalkhoran, NM; Claverie A, Liliental-Weber Z, Weber ER, Sekula-Moise PA, Vernon S, Haven V: Journal of Electronic Materials 22(12):1409-1412, 1993.

Related to Epitaxial growth of GeSi and Ge on Si and Compliant Substrates

"Strain studies of silicon-germanium epilayers on silicon substrates using raman spectroscopy," Lu F, Perry CH, Namavar F, Rowell NL, Soref RA: Applied Physics Letters 63(9):1243-1245, 1993.

"Raman scattering studies of silicon-germanium epitaxial layers grown by atmospheric pressure chemical vapor deposition," Perry CH, Lu F, and Namavar F: Solid State Communications 88(8):613-617, 1993.

"Raman scattering studies of germanosilicon ($\text{Si}_{1-x}\text{Ge}_x$) layers grown by atmospheric pressure chemical vapor deposition," Perry CH, Lu F, Namavar F and Rowell NL: Materials Research Society Symposium Proceedings 281 (Semiconductor Heterostructures for Photonic and Electronic Applications) 473-478, 1993.

"Photoluminescence from $\text{Si}_{1-x}\text{Ge}_x$ Strained Layers Grown by Atmospheric Pressure Chemical Vapor Deposition," N.L. Rowell, J.P. Noël, A. Wang, F. Namavar, C.H. Perry, R.A. Soref, J. Appl. Phys., **71**, (1992).

"Spectroscopic ellipsometry and photoluminescence from silicon-germanium ($\text{Si}_{1-x}\text{Ge}_x$) alloys grown by atmospheric pressure chemical vapor deposition," Hulse JE, Rowell NL, Wang A, Namavar F, Perry CH: Canadian Journal of Physics 70(10-11):1194-1198, 1992.

"Growth of silicon-germanium strained layers using atmospheric-pressure CVD," Namavar F, Manke JM, Kvam EP, Sanfacon MM, Perry CH, and Kalkhoran NM: Materials Research Society Symposium Proceedings 220(Silicon Mol. Beam Epitaxy):285-290, 1991.

"Reduced dislocation density in germanium/silicon epilayers," Kvam EP and Namavar F: Applied Physics Letters 58(21):2357-2359, 1991.

"Ion channeling measurements on germanium implanted and annealed silicon," Johnson EA, Namavar F, Cortesi E and Culbertson RJ: Material Research Society Symposium Proceedings 157(Beam-Solid Interact.:Phys. Phenom):721-726, 1990.

"GeSi/Si layer structures by chemical vapor deposition," Namavar F, Cortesi E, Manke JM, Kalkhoran NM, Johnson EA, DeSilvestre OA, Blythe MC, Johnson MH and Perry DL: Proc. of the 2nd Intl. Conf. on Elec. Mat. Newark, NJ, 403, 1990.

"Characterization of CVD-grown epitaxial $\text{Ge}_x\text{Si}_{1-x}$ on Si," Namavar F, Kvam EP, Perry DL, Cortesi E, Kalkhoran NM, and Manke JM: Mat. Res. Soc. Symp. Proc. EA-21:249, 1990.

Related to Silicon-on-Insulator Novel Structures and Radiation hard Devices

"Isolation of a metallic $\text{Si}(111)7\times 7$ surface reconstruction via separation by implanted oxygen," Noh M, Jellison GE Jr, Namavar F, and Weitering HH: Applied Physics Letters 76(6):733-735, 2000.

"Charged particle radiation effects on bulk silicon and SIMOX SOI photodiodes," Kalkhoran NM, Burke EA and Namavar F: IEEE Transactions on Nuclear Science 42(6 Pt.1):2082-2088, 1995.

"Suppression of parasitic bipolar effects and off-state leakage in fully-depleted SOI n-MOSFETs using Ge-implantation," Wei HF, Chung JE, Kalkhoran NM, and Namavar F: IEEE Transactions on Electron Devices 42(12):2096-2103, 1995.

"Improvement of radiation hardness in fully-depleted SOI n-MOSFETs using Ge-implantation," Wei HF, Chung JE, Kalkhoran NM, Namavar F, Annamalai NK, and Shedd WM: IEEE Transactions on Nuclear Science 41(6,Pt.1):2291-2296, 1994.

"Ultrathin low energy SIMOX for low-cost, high-density application," Namavar F, Kalkhoran NM, and Cremins A: Materials Research Society Symposium Proceedings 316(Materials Synthesis and Processing Using Ion Beams):1053-1058, 1994.

"Heteroepitaxial Si-ZrO₂-Si by MOCVD" Greenwald AC, Kalkhoran NM, Namavar F, Kaloyeros AE, Stathakos I: Materials Research Society Symposium Proceedings 335(Metal-Organic Chemical Vapor Deposition of Electronic Ceramics):123-128, 1994.

"Improvement of breakdown voltage and off-state leakage in Ge-implanted SOI n-MOSFETs," Wei H, Kalkhoran NM, Namavar F, and Chung J: Technical Digest of International Electron Device Meeting, Washington, D.C., 712, 1993.

"On the formation of ultrathin SIMOX structures by low energy implantation," Namavar F, Buchanan B and Kalkhoran NM: Materials Research Society Symposium Proceedings 284(Amorphous Insulating Thin Films):567-572, 1993.

"Ultrathin SOI structures by low energy oxygen implantation," Namavar F, Cortesi E, Buchanan B, Manke JM, and Kalkhoran NM: Materials Research Society Symposium Proceedings 235(Phase Formation and Modification by Beam-Solid Interactions):109-114, 1992.

"Low-dislocation-density silicon-on-insulator material produced by sequential oxygen implantation and low-temperature annealing," Venables D, Jones KS and Namavar F: Applied Physics Letters 60(25):3147-3149, 1992.

"Strain relief and defect formation in high dose oxygen implanted silicon," Venables D, Jones KS, Namavar F and Manke JM: Materials Research Society Symposium Proceedings 235(Phase Formation and Modification by Beam-Solid Interactions):103-108, 1992.

"Defect reduction and defect engineering in silicon-on-sapphire material using Ge implantation," Namavar F, Cortesi E, Kalkhoran NM, Manke JM and Buchanan BL: Mat. Res. Soc. Symp. Proc. 201:337, 1991.

"High dose rate oxygen implantation for formation of silicon-on-insulator structures," Cortesi E, Namavar F, Pinizzotto RF and Yang H: Materials Research Society Symposium Proceedings 201(Surf.Chem.Beam-Solid Interact.):259-264, 1991.

"Effect of implantation current density and anneal time on the microstructure of SIMOX," Yang H, Pinizzotto RF, Namavar F, and Cortese E: Nuclear Instruments & Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms B56-B57(Pt. 1):668-671, 1991.

"Formation of low dislocation density silicon-on-insulator by a single implantation and annealing," El-Ghor MK, Pennycook SJ, Namavar F, and Karam NH: Applied Physics Letters 57, 1990.

"Effect of oxygen implantation conditions on buried silicon dioxide layer formation using a multiple step process," Namavar F, Cortesi E, Pinizzotto RF, and Yang H: Materials Research Society Symposium Proceedings 157 (Beam-Solid Interact.: Phys. Phenom.):179-184, 1990.

"Confinement of threading dislocations in SIMOX with a germanium-silicon strained layer," Namavar F, Cortesi E, Perry DL, Johnson EA, Kalkhoran NM, Manke JM, Karam NH, Pinizzotto RF and Yang H: Materials Research Society Symposium Proceedings 198(Epitaxial Heterostruct.):508-508, 1990.

"Growth and characterization of indium phosphide/gallium arsenide on SOI by MOCVD," Karam NH, Haven V, Vernon SM, Namavar F, El-Masry N, Haegel N, and Al-Jassim MM: Materials Research Society Symposium Proceedings 198 (Epitaxial Heterostruct.):247-252, 1990.

"Characterization of low energy SIMOX (LES) structures," Namavar F, Cortesi E, Kalkhoran NM, Manke JM and Buchanan BL: Proc. IEEE SOS/SOI Technology Conference, Key West, FL, 2-4 October, 1990.

"Formation of low dislocation density silicon-on-insulator by a single implantation and annealing," El-Ghor MK, Pennycook SJ, Namavar F, and Karam NH: Applied Physics Letters 57(2):156-158, 1990.

"Study of the evolution of the buried SiO₂ layer formed by multiple low dose oxygen implantation into silicon," Namavar F, and Cortesi E: Mat. Res. Soc. Symp. Proc. 157, 1990.

"Low energy SIMOX (LES)," Namavar F, Cortesi E, Buchanan B, and Sioshansi P: IEEE SOS/SOI Technology Conference, Stateline, NV, 3-5 October, 1989.

"Novel silicon-on-insulator structures for silicon waveguides," Cortesi E, Namavar F, and Soref RA: IEEE SOS/SOI Technology Conference, Stateline, NV, 3-5 October, 1989.

"Low defect, high quality SIMOX produced by multiple oxygen implantation with substoichiometric total dose," Namavar F, Cortesi E, and Sioshansi P: Materials Research Society Symposium Proceedings 128(Process. Charact. Mater. Using Ion Beams):623-628, 1989.

"On the formation of thick and multiple layer SIMOX structures and their applications," Namavar F, Cortesi E, Soref RA, and Sioshansi P: Materials Research Society Symposium Proceedings 147 (Ion Beam Process. Adv. Electron. Mater.):241-246, 1989.

"Effect of implantation energy on surface pitting of SIMOX," Namavar F, Cortesi E, Kalkhoran NM, Manke JM, Buchanan BL, Pinizzotto RF, and Yang P: Proc. IEEE International SOI Conference, Vail Valley, CO, 1-3 Oct., 1991.

"Reduction of threading dislocation defects in the silicon overlayer of SIMOX by Ge implantation and solid phase epitaxy regrowth," Namavar F, Cortesi E, and Sioshansi P, Mat. Res. Soc. Symp. Proc. 147, 235, 1989.

"Back channel degradation and device material improvement by germanium implantation," Namavar F, Buchanan B, Cortesi E, and Sioshansi P: Materials Research Society Symposium Proceedings 147(Ion Beam Process. Adv. Electron. Mater.):235-240, 1989.

"Recent advances in SIMOX defect reduction and novel structures," Namavar F, Cortesi E, and Sioshansi P, Invited Paper, Fall 1988 Mat. Res. Soc. Symp. Proc., Meeting, in Selected Topics in Electronic Materials, ed. by B.R. Appleton et al., 109, 1988.

"Processing SIMOX wafer below the critical temperature," Sioshansi P and Namavar F, Mat. Res. Soc. Symp. Proc.107, 1988.

"Formation of buried silicon dioxide by high dose implantation of oxygen at room and liquid nitrogen temperature," Namavar F, Budnick JI, Sanchez FH, and Hayden HC: Materials Research Society Symposium Proceedings 53(Semicond. Insul. Thin Film Transistor Technol.):233-238, 1986.

"Study of dose and dose rate in the implantation of nitrogen isotopes into silicon (100)," Namavar F, Budnick JI, Fasihuddin A, Sanchez FH and Hayden HC: Materials Research Society Symposium Proceedings 53(Semicond. Insul. Thin Film Transistor Technol.):281-286, 1986.

"On the formation of Si oxide by oxygen implantation," Namavar F, Budnick JI, Sanchez FH, and Hayden HC: Mat. Res. Soc. Symp. Proc. 45:317, 1986.

Related to Buried and Surface Silicides and Devices

"Cobalt disilicide intercell ohmic contacts for multijunction photovoltaic energy converters," Kalkhoran NM, Maruska HP, and Namavar F: Applied Physics Letters 64(15):1980-1982, 1994.

"Optical properties of buried Cobalt disilicide layers in silicon," Lu F, Perry CH, and Namavar F: Journal of Applied Physics 75:7465, 1994.

"Sequential-ion-implantation synthesis of ternary metal silicides," Namavar F, Heald SM, and Budnick JI: Applied Physics Letters 63(6):791-793, 1993.

"Microstructural analysis of nickel silicide formed by nickel/silicon-on-oxide annealing," Yang H, Pinizzotto RF, Luo L and Namavar F: Applied Physics Letters 62(21):2694-2696, 1993.

"Formation of metallic, crystalline nickel disulfide thin film on amorphous silica/silicon," Luo L, Nastasi M, Maggiore CJ, Pinizzotto RJ, Yang H, and Namavar F: Journal of Applied Physics 73(8):4107-4109, 1993.

"Silicide formation and structural evolution in iron-, cobalt-, and nickel-implanted silicon," Tan Z, Namavar F, Budnick JI, Sanchez FH, Fasihuddin A, Heald SM, Bouldin CE and Woicik JC: Physical Review B: Condensed Matter and Materials Physics 46(7):4077-4085, 1992

"Phase formation of platinum silicides formed by ion implantation," Kalkhoran NM, Namavar F, Perry D and Cortesi E: Materials Research Society Symposium Proceedings 235(Phase Formation and Modification by Beam-Solid Interactions):325-330, 1992

"Dependence of buried cobalt disilicide resistivity on ion implantation and annealing conditions," Namavar F, Kalkhoran NM, Manke J, Luo L, and McGinn KT: Materials Research Society Symposium Proceedings 235(Phase Formation and Modification by Beam-Solid Interactions):285-292, 1992

"Correlation of optical properties and structural analysis for cobalt silicide layers buried in silicon," Perry CH, Lu F, Namavar F, Maruska HP: Materials Research Society Symposium Proceedings 279(Beam Solid Interactions: Fundamentals and Application):887-892, 1993

"Silicide formation in high-dose Fe-implanted silicon," Tan Z, Namavar F, Heald SM, Budnick JI, and Sanchez FH: Materials Research Society Symposium Proceedings 235 (Phase Formation and Modification by Beam-Solid Interactions):267-272, 1992

"Metalization of oriented crystalline films on amorphous silica/silicon," Luo L, Nastasi M, Maggiore CJ, Pinizzotto RF, Yang H and Namavar F: Materials Research Society Symposium Proceedings 260(Advanced Metallization and Processing for Semiconductor Devices and Circuits-II):923-928, 1992

"A soft-x-ray emission investigation of cobalt implanted silicon crystals," Jia, JJ, Callcott Ta, O'Brien WL, Dong QY, Mueller DR, Rubensson JE, Ederer DL, Tan Z, Namavar F, and Budnick JI: Journal of Applied Physics 69(11):7800-7804, 1991

"Silicide structural evolution in high-dose cobalt-implanted silicon (100) crystals," Tan ZQ, Budnick JI, Sanchez FH, Tourillon G, Namavar F, and Hayden HC: Physical Review B: Condensed Matter and Materials Physics 40(9):6368-6373, 1989

"EXAFS studies of cobalt silicide formation produced by high dose ion implantation," Tan Z, Budnick JI, Sanchez F, Tourillon G, Namavar F, Hayden H, Fasihuddin AF: Materials Research Society Symposium Proceedings 143(Synchrotron Radiat. Mat. Res.):145-150, 1989

"Systematics of silicide formation by high dose implantation of transition metals into Si," Namavar F, Sanchez FH, Budnick JI, Fasihuddin AH, Hayden HC: Materials Research Society Symposium Proceedings 74(Beam-Solid Interact. Transient Processes):487-492, 1987

"Ion implantation of metal silicide thin films for infrared detector applications," Namavar F, Cortesi E, and Johnson EA: 1988 Meeting of IRIS Specialty Group on Infrared Detectors, U.S. Naval Academy, Annapolis, MD, 16-18 August, 1988

"Silicide formation by high dose transition metal implants into silicon," Sanchez FH, Namavar F, Budnick JI, Fasihudin A, and Hayden HC: Materials Research Symposium Proceedings 51(Beam-Solid Interact. Phase Transform):439-444, 1986

Related to Ion Implantation and Thin Films

"Ion-implanted thin film phosphors for full-color field emission displays," Kalkhoran NM, Maruska HP, and Namavar F: Materials Research Society Symposium Proceedings 316(Materials Synthesis and Processing Using Ion Beams):481-486, 1994

"Heteroepitaxial Si-ZrO₂-Si by MOCVD," Greenwald AC, Kalkhoran NM, Namavar F, Kaloyeros AE, and Stathokos I: Mat. Res. Soc. Symp. Proc. 335:123, 1994

"X-Ray absorption studies of krypton precipitates in solid matrices," Tan Z, Budnick JL, Pease DM and Namavar F: Physical Review B: Condensed Matter and Materials Physics 43(3):1987-1892, 1991

"Pulsed thermal stress of thin silicon carbide films," Johnson EA, Namavar F, Cortesi E, Loh IH, Nordberg MM and Von Benken CJ: International SAMPE Electronics Conference 3(Electron. Mater. Processes):653-658, 1989

"Comparison of ion beam and sputter techniques for Al-Si depth profiling," Namavar F, Budnick JI, and Otter FA: Nuclear Instruments and Methods, 1987

"Surface regions of amorphous silicon and crystalline aluminum in an aluminum-implanted silicon crystal," Tafto J, Sabatini RL, Budnick JI, and Namavar F: Materials Letters 5(1-2):5-8, 1986

"Beam induced compositional changes in RBS analysis of polymers," Namavar F, and Budnick JI: Nuclear Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms B15(1-6):285-287, 1986

"Krypton XANES studies in implanted systems," Budnick JI, Pease DM, Choi MH, Tan Z, Hayes GH, Namavar F, and Hayden HC: Journal de Physique, Colloque C8, Vol. 2:C8/1053-C8/1056, 1986

"Effect of temperature on high fluence transition metal implants into polycrystalline aluminum," Sanchez FH, Namavar F, Budnick JI, Fasihuddin A, Koch CH, and Hayden HC: Materials Science and Engineering 90:149-159, 1987

"Nuclear resonance profiling of high dose implants of aluminum in silicon," Namavar F, Budnick JI, Sanchez FH, and Otter FA: Nuclear Instruments & Methods in Physics Research Section B: Beam Interactions with Materials and Atoms B7-8(1):357-360, 1985

"Gettering of impurities during high dose implantation of aluminum or chromium into silicon and the resulting effect on structure and composition," Namavar F, Budnick JI and Otter FA: Materials Research Society Symposium Proceedings 36(Impurity Diffus. Gettering Silicon):55-60, 1985

"Study of near surface structure and composition of high dose implantation of chromium(1+) into silicon," Namavar F, Budnick JI, Hayden HC, Otter FA and Patarini V: Materials Research Society Symposium Proceedings 27(Ion Implant. Ion Beam Process. Mater.):341-346, 1984

"The Influence of Implantation Condition and Target Orientation in High Dose Implantation of Al into Si," F. Namavar, J.I. Budnick, A. Fasihuddin, H.C. Hayden, P.A. Pease, F.A. Otter and V. Patarini, Mat. Res. Soc. Symp. Proc., **27**, 347 (1984)

"Modifications in the unit cell geometry of sputtered niobium films caused by high energy ion bombardment," Pease DM, Namavar F, Budnick J, Choe M, Groeger J, and Otter FA: Thin Solid Films 120(3):239-247, 1984

"Chemical profiling and structural studies of ion-beam mixed aluminum on silicon," Namavar F, Budnick JI and Otter FA: Thin Solid Films 104(1-2):31-41, 1983

"Chemical profiling and structural studies of ion-beam-mixed aluminum on silicon"
Materials Research Society Symposium Proceedings 18(Interfaces Contacts):31-41, 1983

Related to Nuclear Physics and Hyperfine Interactions

"Quadrupole interactions at different probe ions implanted in nickel single crystals as observed by Beta-Gamma TDPAC," Namavar F, Rots M, Claes J and Coussement R: Hyperfine Interactions 12(3):233-260, 1982

"Spatial anisotropy of xenon-defect configurations in cubic single crystals," Claes J, Namavar F and Rots M: Physics Letters A 88A(6):303-306, 1982

"The electric field gradient at iodine impurities in zinc and cadmium," Ooms H, Claes J, Namavar F and Rots M: Hyperfine Interactions 11(1):1-12, 1981

"The quadrupole interaction at iodine impurities in a tellurium matrix derived from Beta-Gamma TDPAC experiments," Ooms H, Claes J, Namavar F and Rots M: Zeitschrift fuer Physik (Sektion) 42(4):327-332, 1981

"Nuclear moments in doubly odd iodine-132 isotope," Ooms H, Claes J, Namavar F, Van de Voorde H and Rots M: Nuclear Physics A A321(1):180-188, 1979

"Dependence of the TDPAC spectra on the orientation of the principal axis system of the electric field gradient," Rots M, Claes J and Namavar F: Hyperfine Interactions 7(5):323-331, 1979

"Quadrupole interaction of vacancy associated impurities in ferromagnetic cubic metals," Namavar F Rots M, Coussement R, Ooms H, and Claes J: Hyperfine Interactions 4(1-2):716-719, 1978

"Quadrupole interaction for iodine in tellurium, zinc and cadmium" Ooms H, Namavar F, Claes J, Van de Voorde H, Coussement R and Rots M: Hyperfine Interactions 4(1-2):559-563, 1978

"Quadrupole moments in the doubly odd iodine-132 isotope," Ooms H, Claes J, Namavar F, Van De Voorde H and Rots M: *Hyperfine Interactions* 4(1-2):226-228, 1978

"Electric field gradient and lattice location of tin in tellurium," Rots M, Namavar F, Langouche G, Coussement R, Van Rossum M and Boolchand P: *Journal of Physics F: Metal Physics* 8(5):L117-L120, 1978

"A special feature of the integral perturbed angular correlation method for the study of the electric quadrupole interaction," Rots M, Ooms H, Claes J, Namavar F and Coussement R: *Hyperfine Interactions* 5(5):391-398, 1978

"Mössbauer effect and perturbed angular correlation measurements on xenon- 129m implanted in diamond," Van Rossum M, De Bruyn J, Langouche G, Rots M, Ooms H, Claes J, Namavar F, and Coussement R: *Hyperfine Interactions* 4(1-2):727-731, 1978

"Detection of a quadrupole interaction in a ferromagnetic cubic lattice by allowed Beta-Gamma time differential perturbed angular correlation," Rots M, Namavar F, Coussement R: *Physical Review Letters* 34(17):1099-1102, 1975

"Electric field gradient and lattice location of tin in tellurium," Van Rossum M, Langouche G, Boolchand P, Rots M, Namavar F and Coussement R, *Proc. Inter. Conf. on Mossbauer Spectroscopy, Cracow, Poland*, 1:205, 1975

"Detection of a quadrupole interaction in a ferromagnetic cubic lattice by allowed beta-gamma time differential perturbed angular correlation," Rots M, Namavar F and Coussement R: *Phys. Rev. Lett.* 34:1099, 1975

"Angular correlation study of iodine-131," Lhersonneau G, DeRaedt J, Van de Voorde H, Ooms H, Rots M, Namavar F, and Haroutunian R: *Proc. Int. Conf. Nucl Struct. Spectrosc.* 1:100, 1974

"The angular correlation of the 459.7-27.7 keV gamma-gamma cascade in iodine- 129 and its use for a TDPAC," Rots M, Van De Voorde H, Ooms H, Namavar F, Coussement R and De Raedt J: *Zeitschrift fuer Physik* 270(1):51-54, 1974

"A study of the hyperfine field of cesium in nickel and iron," Namavar F, Rots M, Pattyn H, Dumont G and Coussement R: *J. de Phys.*, 35 C1:7, 1974

CONFERENCE PRESENTATIONS

Conferences Abstract published in Journal:

"Smart Surfaces for Implant Devices" Namavar, F; Jackson, J.D.; Sharp, J.G.; Mann, E.; Bayles, K.W.; Gustafson, T.J.; Haider, H. and Garvin, K.L. 26th Scientific Conference of the Society for Physical Regulation in Biology and Medicine, Miami Beach, Florida. January 9-11, 2008 will be appearing also in Springer/CMBE (Cellular and Molecular Bioengineering of BMES) 2008.

“Studies of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Ultra-Hydrophilic Hard Ceramic Coatings.” Namavar, F.; Jackson, J.; Sharp, J.; Varma, S.; Haider, H.; Feschuk, C.; and Garvin, K. *Tissue Engineering*, April 2007, Vol. 13, No. 4: 865-925.

<http://www.liebertonline.com/doi/pdfplus/10.1089/ten.2006.9999>

“Novel Engineered Nanocrystalline Ultra-Hydrophilic Hard Ceramic Coatings for Attachment and Growth of Bone Marrow Stromal Cells” F. Namavar, J.D. Jackson, J.G. Sharp, S. Varma, H. Haider, C. Feschuk and K.L. Garvin. *Molecular and Cellular Biomechanics*, Vol.3, p. 171, 2006.

http://www.techscience.com/mcb_pdf/v3n4/019.pdf

Conferences:

“Nanostructurally Stabilized Zirconia versus Hydroxyapatite.” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Haider, H.; and Garvin, K.L., *Transactions of the 54th Annual Meeting of the Orthopaedic Research Society*, San Francisco, March 2008.

“Triple smart surfaces for implant devices.” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Mann; E.; Bales, K.; Haider, H. and Garvin, K.E., proceeding of The 11th Meeting-Seminar of Ceramics, Cells and Tissues topic, “Nanotechnology for Functional Repair and Regenerative Medicine the Role of Ceramics as In Bulk and As Coating.” October 2-5, 2007, Faenza – Italy.

“On The Development of Smart Durable Coatings to Promote Biointegration While Preventing Biofilm Formation.” Namavar, F.; Garvin, K.E.; Jackson, J.; Sharp, J.G.; Mann, E.; Bayles, K. and Haider, H. *International Society for Technology in Arthroplasty (ISTA) 2007 20th Annual Congress* October 4 –6, 2007 Paris, France.

“Probing Local Structures in ZrO₂ Nanocrystals Using EXAFS.” Soo, Y.L.; Chen, P.J.; Huang, S.H.; Shiu, T.J.; Tsai, T.Y.; Chow, Y.H.; Lin, Y.C.; Weng, S.C.; Chang, S.L.; Lee, J.F.; Cheung, C.L.; Sabirianov, R.F.; Namavar, F.; Mei, W.N. *American Physical Society*, March 10-14, 2008, New Orleans, Louisiana.

“Wear of Titanium Niobium Nitride Coated Total Knee Replacements.” Weisenburger, J.; O’Brien, B; Croson, R. Naylor, M. Schroeder, D.; Namavar, F.; Garvin, K.G. and Haider, H. *International Society for Technology in Arthroplasty (ISTA), 2007 20th Annual Congress*, October 4 –6, 2007 Paris, France.

(Invited Oral) “Wettability of Structurally Stabilized Zirconia.” Cheung, C.L.; Wang, G.; Namavar, F.; Mei, W-N.; Sabirianiov, R.F.; Zeng, X.C.; Haider, H. and Garvin, K.L. *63rd American Chemical Society, Southwest Regional Meeting*, Lubbock TX.

“Stabilizer-free Nanostructured Zirconia.” Wang, G.; Cheung, C.L.; Namavar, F.; Bai, J.; Sabirianov, R.F.; Zeng, X.C.; Brewer, J.R.; Mei, W-N.; Haider, H. and Garvin, K.L. 54th

Midwest Solid State Conference. University of Nebraska, Lincoln, NE 68588, October 6-7, 2007.

“The Future of Ceramic Nanotechnology” Namavar, F.; Haider, H.; Varma, S.; Amirani, I.; Feschuk, C. and Garvin, K.L. Materials for Scaffolding of Biologically Engineered Systems Interfaces and Interactions on a Nanoscale, 10th CCT Meeting/Seminar, Faenza Italy, May 2006.

“Application of Ion Beam Technology for Alternative Bearing Surfaces in Total Joint Arthroplasty” Namavar, F.; Varma, S.; Haider, H. and Garvin, K.L. Materials Science and Technology 2006 (The American Ceramic Society, Association for Iron & Steel Technology, ASM International, and the Minerals, Metals & Materials Society), Cincinnati, OH, October 15-19, 2006.

“Ion Beam Engineered Nanocrystalline Ceramic films for Alternative Bearing Surfaces.” Namavar, F.; Blatchley, C.; Haider, H.; Varma, S.; Sabirianov, R.F.; Cheung, C.L.; Mei, W-N.; Zeng, X.C. and Garvin, K.L.. 53rd Midwest Solid State Conference Department of Physics, University of Missouri-Kansas City (UMKC), October 7-8th, 2006.

“Preliminary Analysis of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Hard Ceramic Coatings.” Jackson, J.D.; Sharp, J.G.; Namavar, F.; Haider, H. and Garvin, K.L. Materials for Scaffolding of Biologically Engineered Systems Interfaces and Interactions on a Nanoscale, 10th CCT Meeting/Seminar, Faenza Italy, May 2006.

“Preliminary Studies of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Ultra-Hydrophilic Hard Adherent Ceramic Coatings.” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Varma, S.; Haider, H. and Garvin, K.L. International Society for Technology in Arthroplasty, Roosevelt, NY, October 6-9, 2006.

“Studies of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Ultra-Hydrophilic Hard Ceramic Coatings.” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Varma, S.; Haider, H.; Feschuk, C. and Garvin, K.L. 2nd International Congress on Bio-Nanointerface (ICBN 2006) and the Second International Congress on Regenerative Biology, (BioStar 2006), Liederhalle, Stuttgart, October 9-11, 2006.

“Preliminary Studies of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Ultra-Hydrophilic Hard Adherent Ceramic Coatings.” Namavar, F.; Jackson, J.D.; Sharp, J.G.; Varma, S.; Haider, H.; Feschuk C. and Garvin, K.L. Material Research Society, 2006 MRS Fall Meeting, Boston, MA, November 27 - December 1, 2006.

“Novel Engineered Nanocrystalline Ultra-Hydrophilic Hard Ceramic Coatings for Attachment and Growth of Bone Marrow Stromal Cells” Oral presentation: Namavar, F.; Jackson, J.D.; Sharp, J.G.; Varma, S.; Haider, H.; Feschuk C. and Garvin, K.L. 25th

Scientific Conference for Society for Physical Regulation in Biology and Medicine. Honolulu, Hawaii, January 10-13, 2007.

"Analysis of Wettability and Surface Roughness of Orthopaedic Implant Components." Varma, S.; Namavar, F.; Salehi, A.; Garvin, K.L. and Haider H.. International Society for Technology in Arthroplasty, Roosevelt, NY, October 6-9, 2006.

"Influence of Different Manufacturing Methods on Contact Angle Wettability Characteristics of Joint Replacement Co-Cr-Mo Alloys." Varma, S.; Namavar, F.; Naylor, M.; Schroeder, D.; Garvin, K.L and Haider, H. International Society for Technology in Arthroplasty, Roosevelt, NY, October 6-9, 2006.

"Nanostructurally designed ultra-hydrophilic hard coating of ceramic oxides." Namavar, F.; Sabirianov, R.F.; Cheung, C.L.; Mei, W-N.; Zeng, X.C. and Blatchley, C. submitted to Journal of Science and Technology for Advanced Materials, Special Issue (Nov 2006), Elsevier.

"Preliminary Analysis of Attachment, Survival and Growth of Bone Marrow Stromal Cells on Nanocrystalline Hard Ceramic Coatings." 10th Annual Seminar and Meeting of Ceramics, Cells and Tissues, 23 – 27 May 2006, Faenza, Italy.

"Self-Lubricating Nanostructurally Stabilized Pure Cubic ZrO₂ for Low Wear of Orthopaedic Implants." First International Conference on Mechanics of Biomaterials and Tissues, 11-14 Dec 2005, Waikoloa, HI.

"Applications of Nanotechnology for Alternative Bearing Surfaces for Total Joint Arthroplasty." EPSCoR-SBIR National Conference, 20 April 2005, Qwest Center, Omaha, NE.

"Applications of Nanotechnology for Alternative Bearing Surfaces for Total Joint Arthroplasty." Heartland Biomedical Engineering Symposium (HBES), 18 April 2005, Omaha, NE.

"Nanotechnology for Producing Superhard Bearing Surfaces." Alternative Bearing Surfaces in Total Joint Replacement, 14-15 October 2004, Philadelphia, PA.

"Applications of Nanotechnology for Producing Novel Superhard Bearing Surfaces." The 6th Annual Symposium on Alternative Bearing Surfaces in Total Joint Replacement, 22-24 September 2003, San Francisco, CA.

"Application of Nanotechnology for Producing Novel Superhard Bearing Surfaces." Namavar, F. and Tobin, E. 17th Annual European Society of Biomaterials, 11-14 Sept 2002, Barcelona, Spain.

"Investigation of porous silicon as new compliant substrate for 3C-SiC deposition." Namavar, F.; Colter, P.; Planes, N.; Fraisse, B.; Juillaguet, S. and Camassel, J. 2nd European Conf. On Silicon Carbide and Related Matl. 2-4 Sept 1998, Montpellier, France.

"Systematic Evidence of SIMOX as a compliant substrate for SiC," F. Namavar, P.C. Colter, C.A. Jollimore, M. Yoganathan, M. Leksono, J.I. Pankove, W. Zhou, P. Pirouz, E. Gagnon, Mat. Res. Soc. '97 Fall Meeting, 1-5 Dec 1997, Boston, MA.

"Variation of optimal conditions for CVD growth of SiC on SIMOX and Si," P.C. Colter, F. Namavar, E. Gagnon, C.A. Jollimore, Mat. Res. Soc. '97 Fall Meeting, 1-5 Dec 1997, Boston, MA.

"HRTEM Study of planar defects and interfaces in MOCVD-grown GaN on SiC on SIMOX, W.L. Zhou, P. Pirouz, F. Namavar, P.C. Colter, and C.A. Jollimore, M.W. Leksono, and J.I. Pankove, Mat. Res. Soc. '97 Fall Meeting, 1-5 Dec 1997, Boston, MA.

"The doping and characterization of erbium-implanted GaN," J.T. Torvik, Jacques I. Pankove, C.H. Qiu, R. Feuerstein, F. Namavar, Mat. Res. Soc. '97 Fall Meeting, 1-5 Dec 1997, Boston, MA.

"Low temperature ion beam assisted deposition of nanocrystalline TiN coatings," H. Karimy, F. Namavar, E. Tobin, R.J. Bricault, J.P. Hirvonen, R. Ayer, C.W. Colerico, Mat. Res. Soc. '96 Fall Meeting, 2-6 Dec 1996, Boston, MA.

"Engineered Nanocrystallites for enhanced performance ceramic coatings by ion beam deposition," F. Namavar, Mat. Res. Soc. '96 Fall Meeting, 2-6 Dec 1996, Boston, MA.

"Mechanical and Tribological Properties of Chromium Nitride Films deposited by ion beam assisted deposition, E.J. Tobin, F. Namavar, H.F. Karimy, C.W. Colerico, R.J. Bricault, J.P. Hirvonen, R. Ayer, Mat. Res. Soc. '96 Fall Meeting, 2-6 Dec 1996, Boston, MA.

"Ultrathin Si on SiO₂: A Compliant Substrate for Growth of Epitaxial SiC and GaN," F. Namavar, P. Colter, A. Cremins, E. Gagnon, and D. Perry, Mat. Res. Soc. Symp. Proc., 1995 Fall Meeting, Symp AAA, Nov 27-Dec 1, 1995, Boston, MA.

"Photoluminescence Properties of Er-doped Porous Silicon," U. Hömmerich, F. Namavar, and A. Cremins, Mat. Res. Soc. Symp. Proc., 1995 Fall Meeting, Symp K, Nov 27-Dec 1, 1995, Boston, MA.

"Ion-Beam Deposition of AlN into Semiconductor and Non-Semiconductor Substrates at Low Temperature," H. Karimy, E. Tobin, R. Bricault, P. Sioshansi, A. Cremins, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1995 Fall Meeting, Symp A, Nov 27-Dec 1, 1995, Boston, MA.

"Visible and Infrared (1.54 μm) Emission from Er-Implanted Porous Si for Photonic Applications," F. Namavar, F. Lu, C.H. Perry, A. Cremins, N.M. Kalkhoran, J.T. Daly, and R.A. Soref, 124th TMS Annual Meeting, February 12-16, 1994, Las Vegas, NV.

"Co Implantation for Efficient Vertical Multijunction Laser Energy Converters," F. Namavar, N.M. Kalkhoran, H.P. Maruska, and A. Cremins, 124th TMS Annual Meeting, February 12-16, 1994, Las Vegas, NV.

"Luminescence Studies of Erbium Doped Gallium Nitride," C.H. Qui, M. Leksono, J.T. Torvik, R.J. Feuerstein, J.I. Pankove, F. Namavar, CLEO/Europe EQEC, Amsterdam, The Netherlands, 28 August-2 September, 1994.

"Integrated Optics in SIMOX Developed at the University of Surrey," G.T. Reed, C.K. Tang, A.G. Rickman, A.J. Walton, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1994 Fall Meeting, Symp. Z (Za1.1) Nov 27-Dec 2, 1994, Boston, MA.

"Er-Doped Porous Silicon: A Novel Material for Si-Based Infrared LEDs," F. Namavar, F. Lu, C.H. Perry, A. Cremins, N.M. Kalkhoran, J.T. Daly, and R.A. Soref, Mat. Res. Soc. Symp. Proc., 1994 Fall Meeting, Symp. F (F3.5) Nov 27-Dec 2, 1994, Boston, MA.

"Photo- and Electroluminescence in Porous Silicon," W. Lang, and F. Namavar, Abstracts LEOS 7th Annual Meeting, October 31- November 3, 1994, Boston, MA.

"Er-Doped Porous Silicon: A Novel Material for Si-Based Infrared LEDs," F. Namavar, F. Lu, C.H. Perry, A. Cremins, N.M. Kalkhoran, J.T. Daly, and R.A. Soref, Rare Earth Doped Optoelectronic Materials Workshop, June 16-17, 1994, Malibu, CA.

"Arsenic Implantation into GaAs: A Novel Approach for Producing Insulating GaAs Structures," F. Namavar, N. Kalkhoran, A. Claverie, Z.Liliental-Weber, and E.R. Weber, Mat. Res. Soc. Symp. Proc., 1993 Fall Meeting, Symp. A, (A3.4) Nov 29-Dec 3, 1993, Boston, MA.

"Ultrathin Low Energy SIMOX for Low Cost High Density Applications," F. Namavar, B. Buchanan, N.M. Kalkhoran, N. Mayappan, and A. Cremins, Mat. Res. Soc. Symp. Proc., 1993 Fall Meeting, Symp. A, (A9.21) Nov 29-Dec 3, 1993, Boston, MA.

"Photoluminescence Study of Ion-Implanted ZnS," N.M. Kalkhoran and F. Namavar, Mat. Res. Soc. Symp. Proc., 1993 Fall Meeting, Symp. A, (A13.40) Nov 29-Dec 3, 1993, Boston, MA.

"Size Distributions and Optical Properties of Quantum Confined Semiconductor Nanocrystals," R.F. Pinizzotto, H. Yang, S. Lim, J.L. Coffey, R.R. Chandler, and S.R. Bigham, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1993 Fall Meeting, Symp. U, (U9.3) Nov 29-Dec 3, 1993, Boston, MA.

"Heteroepitaxial Si-ZrO₂-Si by MOCVD," A. Greenwald, N.M. Kalkhoran, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1993 Fall Meeting, Symp. Y, (Y3.18) Nov 29-Dec 3, 1993, Boston, MA.

"Silicon Nanostructures in Si-Based Light-emitting Devices," F. Namavar, R.F. Pinizzotto, H. Yang, N. Kalkhoran, P. Maruska, Mat. Res. Soc. Symp. Proc., 1993 Spring Meeting, Symp. B, (B10.2) April 12-16, 1993, San Francisco, CA.

"Lateral and Vertical Isolation by Arsenic Implantation into MOCVD-Grown GaAs Layers," F. Namavar, N. Kalkhoran, A. Claverie, Z.Liliental-Weber, E.R. Weber, P. Moise, S. Vernon, and V. Haven, Mat. Res. Soc. Symp. Proc., 1993 Spring Meeting, Symp. D, (D2-2.2) April 12-16, 1993, San Francisco, CA.

Rickman AG , Reed GT , Namavar F, "Silicon on insulator optical rib waveguide circuits for fibre optic sensors," Proceedings of SPIE 2071, 190-196 (1993).

"Bright Hopes for Efficient Silicon-Based Light-Emitting Diodes," F. Namavar, N.M. Kalkhoran, and H.P. Maruska, International Workshop on Light Emission and Electronic Properties of Nanoscale Silicon, Feb 1-3, 1993, UNC Charlotte, NC.

"Raman Scattering Studies of Si_{1-x}Ge_x layers Grown by Atmospheric pressure Chemical Vapor Deposition, C.H. Perry, F. Lu, F. Namavar, and N.L. Rowell, Mat. Res. Soc. Symp. Proc., 1992 Fall Meeting, Symp. D, (D5.47) Nov 30-Dec 4, 1992, Boston, MA.

"Correlation of Optical Properties and Structural Analysis for Cobalt Silicide Layers Buried in Silicon," C.H. Perry, F. Lu, F. Namavar, and H.P. Maruska, Mat. Res. Soc. Symp. Proc., 1992 Fall Meeting, Symp. A, (A19.4) Nov 30-Dec 4, 1992, Boston, MA.

"Theory of Porous Silicon Injection Electroluminescence," H.P. Maruska, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1992 Fall Meeting, Symp. F, (F21.3) Nov 30-Dec 4, 1992, Boston, MA.

"Material and Electrical Characteristics of Ultra-thin SIMOX Structures Produced by Low Energy Implant," F. Namavar, B. Buchanan, and N.M. Kalkhoran, Mat. Res. Soc. Symp. Proc., 1992 Fall Meeting, Symp. G, (G10.3) Nov 30-Dec 4, 1992, Boston, MA.

"Structural and Optical Properties of SiGe/Si Optical Waveguide Structures, B.L. Weiss, Y. Zuoya, G. Shao, and F. Namavar, Mat. Res. Soc. Symp. Proc., 1992 Fall Meeting, Symp. D, (D10.6) Nov 30-Dec 4, 1992, Boston, MA.

"Low loss planar optical waveguides fabricated in SIMOX structures," Rickman AG, Reed GT, Weiss BL, Namavar F, IEEE Photonics Technology Letters 4, 653-655 (1992).

"Silicon-germanium and silicon quantum wires for efficient, room temperature, tunable luminescence," Namavar F, Maruska HP, and Kalkhoran NM: Gov. Rep. Announce. Index 92(16):Abstr. No 243,692, 1992

"Strain Relief and Defect Formation in High Dose Oxygen Implanted Silicon," D. Venables, K.S. Jones, F. Namavar, and J.M. Manke, Mat. Res. Soc. Symp. Proc., 1991 Fall Meeting, A3.1.

"Ultrathin SOI Structures by Low Energy Oxygen Implantation," F. Namavar, E. Cortesi, B. Buchanan, J.M. Manke, and N.M. Kalkhoran, Mat. Res. Soc. Symp. Proc., 1991 Fall Meeting, A3.2.

"Silicide Formation and Structural Evolution in Transition Metal (Fe, Co, and Ni) Implanted Silicon," Z. Tan, S.M. Heald, F. Namavar, J.I. Budnick, F.H. Sanchez, A. Fasihuddin, C.E. Bouldin, and J.C. Woicik, Mat. Res. Soc. Symp. Proc., 1991 Fall Meeting, A6.2.

"Dependence of Buried CoSi₂ Resistivity on Ion Implantation and Annealing Conditions," J.M. Manke, F. Namavar, N.M. Kalkhoran, L. Luo, and J.T. McGinn, Mat. Res. Soc. Symp. Proc., 1991 Fall Meeting, A6.5.

"Platinum Silicides by Ion Implantation," N.M. Kalkhoran, F. Namavar, and J.M. Manke, Mat. Res. Soc. Symp. Proc., 1991 Fall Meeting, A7.32.

"High Temperature CVD of $\text{Ge}_x\text{Si}_{1-x}$ and Ge on Si," F. Namavar, N.M. Kalkhoran, J.M. Manke, E. Cortesi, C.H. Perry, and D.M. Pease, Mat. Res. Soc. Proc., 1991 Spring Meeting, B16.7.

"High Dose Rate Oxygen Implantation for Formation of Silicon-on-Insulator Structures," E. Cortesi and F. Namavar, Mat. Res. Soc. Symp. Proc., 1990 Fall Meeting, Symp. A, (A9.1) Nov 26-Dec 1, 1990, Boston, MA.

"Defect Reduction and Defect Engineering in Silicon-on-Insulator Material by Ge Implantation," F. Namavar, E. Cortesi, B.L. Buchanan, E.A. Johnson, N.M. Kalkhoran, and J.M. Manke, Mat. Res. Soc. Symp. Proc., 1990 Fall Meeting, Symp. A, (A13.5) Nov 26-Dec 1, 1990, Boston, MA.

"Characterization of CVD-Grown Epitaxial $\text{Ge}_x\text{Si}_{1-x}$ on Si," F. Namavar, E.P. Kvam, D.L. Perry, E. Cortesi, N.M. Kalkhoran, and J.M. Manke, Mat. Res. Soc. Symp. Proc., 1990 Fall Meeting, Symp. B, (B8.15) Nov 26-Dec 1, 1990, Boston, MA.

"Growth and Characterization of InP/GaAs on SOI By MOCVD," N.H. Karam, V. Haven, S.M. Vernon, F. Namavar, J. Ramdani, N. El-Masry, and N. Haegel, Mat. Res. Soc. Symp. Proc., 1990 Spring Meeting, V5.4.

"Growth of Epitaxial GeSi on SIMOX to Prevent the Propagation of Threading Dislocations into an Epitaxial Si Layer," F. Namavar, E. Cortesi, E.A. Johnson, N.M. Kalkhoran, and N.H. Karam, Mat. Res. Soc. Symp. Proc., 1990 Spring Meeting, V9.7.

"Study of the Evolution of the Buried SiO_2 Layer Formed By Multiple Low Dose Oxygen Implantation into Silicon," F. Namavar and E. Cortesi, Mat. Res. Soc. Symp. Proc., 1989 Fall Meeting, A6.25.

"Ion Channeling Measurements of Strain in Germanium Implanted and Annealed Silicon," E.A. Johnson and F. Namavar, Mat. Res. Soc. Symp. Proc., 1989 Fall Meeting, A9.24.

"Reduction of Threading Dislocation Defects in the Silicon Overlayer of SIMOX by Ge Implantation and Solid Phase Epitaxy Regrowth," F. Namavar, E. Cortesi, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1989 Spring Meeting, Symp.C, (C5.5) April 24-29, 1989, San Diego, CA.

"Formation of Thick and Double Buried SiO_2 Layers by Oxygen Implantation and Growth of Si Epi," F. Namavar, E. Cortesi, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1989 Spring Meeting, Symp.C, (C5.7) April 24-29, 1989, San Diego, CA.

"Pulsed Electron Irradiation of Thin Silicon Carbide Films," E.A. Johnson, F. Namavar, M.N. Nordberg, C.J. Von Benken and E. Cortesi, Mat. Res. Soc. Symp. Proc., 1989 Spring Meeting, Symp.I, (I1.2) April 24-29, 1989, San Diego, CA.

"Target Temperature Effects During Oxygen Implantation of Bi-Ca-Sr-Cu-O," E. A. Johnson, A.C. Greenwald, F. Namavar, C.J. Von Benken and P.M. Tedrow, Mat. Res.

Soc. Symp. Proc., 1989 Spring Meeting, Symp.M, (M8.59) April 24-29, 1989, San Diego, CA.

"Ion Assisted Nitride Films," J.K. Hirvonen, T. Tetreault, F. Namavar, G. Parker, Mat. Res. Soc. Symp. Proc., 1988 Fall Meeting, A2.6.

"Low Defect, High Quality SIMOX Produced by Multiple Oxygen Implantation with Substoichiometric Total Dose," F. Namavar, E.Cortesi, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1988 Fall Meeting, A7.36.

"Silicides Formation by High Dose Cobalt Ion Implantation into Si<100>," Z. Tan, J.I. Budnick, F. Namavar, F.H. Sanchez, H.C. Hayden, and A.H. Fasihuddin, Univ. of Conn., Mat. Res. Soc. Symp. Proc., 1988 Fall Meeting, V3.7.

"Recent Advances in SIMOX Defect Reduction and Novel Structures," (Invited Talk) F. Namavar, E. Cortesi, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1988 Fall Meeting, Y2.1.

"Oxygen Ion Implantation at Low Dose Rates for Buried Layers," S.N. Bunker, F. Namavar, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1987 Fall Meeting, H2.3.

"Buried Single Crystal Silicide Layers by Implantation of Transition Metals," F. Namavar, S.N. Bunker, and P. Sioshansi, Mat. Res. Soc. Symp. Proc., 1987 Fall Meeting, H5.3.

"Systematic of Silicide Formation by High Dose Implantation of Transition Metals into Si," F. Namavar, F.H. Sanchez, J.I. Budnick, and A.H. Fasihuddin, Univ. of Conn., 34, Mat. Res. Soc. Symp. Proc., 1986 Fall Meeting.

"Formation of Buried Silicide by High Dose Implantation of Transition Metals into Si," F. Namavar, F.H. Sanchez, J.I. Budnick, and A.H. Fasihuddin, Abstracts Ion Beam Modification of Materials, June 9-13, 1986, Catania, Italy.

"Effect of Temperature on High Dose Transition Metal Implants into Polycrystalline Al," F.H. Sanchez, F. Namavar, J.I. Budnick, A. Fasihuddin, C.H. Koch, and H.C. Hayden, Abstracts International Conference on Surface Modification of Metals by Ion Beams, July 7-13, 1986, Queen's University Kingston, Ontario, Canada.

"Krypton XANES Studies in Implanted Systems," J.I. Budnick, D.M. Pease, M. Choi, Z. Tan, F. Namavar, F. Sanchez, and H.C. Hayden, Abstracts International Conference of EXAFS, July 7-13, 1986, Universite Paris Sud, Orsay, France.

"Study of High Dose Implantation of Oxygen and Nitrogen into Si," F. Namavar, J.I. Budnick, F.H. Sanchez, A. Fasihuddin, C.H. Koch and H. Hayden, Abstracts Bulletin of the American Physical Society, 31 (1986) 126.

"In situ of energy deposition by ion beams," Budnick JI, Lipschultz FP, Namavar F, Otter FA, and Grudkowski TW: Gov. Rep. Announce Index (US) 85(22):Abstr. No. 551,764, 1985.

"Formation of Buried Si Dioxide by High Dose Implantation of Oxygen at Room and Liquid Nitrogen Temperatures," F. Namavar, J.I. Budnick, F.H. Sanchez, and H.C. Hayden, Abstracts 1985 Fall Meeting of the Materials Research Society, December 2-7, 1985, Boston, MA.

"Study of High Dose Implant of Nitrogen Isotopes in Si(100)," F. Namavar, J.I. Budnick, F.H. Sanchez, and A. Fasihuddin, Abstracts 1985 Fall Meeting of the Materials Research Society, December 2-7, 1985, Boston, MA.

"High Dose Transition Metal Implants in Si," F.H. Sanchez, F. Namavar, J.I. Budnick, A. Fasihuddin, and H.C. Hayden, Abstracts 1985 Fall Meeting of the Materials Research Society, December 2-7, 1985, Boston, MA.

"Analysis of Polymer by Ion Beam Techniques," F. Namavar and J.I. Budnick, Abstracts 7th International Conference on Ion Beam Analysis, July 7-12, 1985, Berlin (FRG).

"Comparison of the Experimental Results of Ion Beam and Sputter Techniques for Al-Si Systems," F. Namavar, J.I. Budnick, and F.A. Otter, Abstracts 7th International Conference on Ion Beam Analysis, July 7-12, 1985, Berlin (FRG).

"On the Formation of Si Oxide by Oxygen Implantation," F. Namavar, J.I. Budnick, H.C. Hayden, and A. Fasihuddin, Abstracts 1985 Spring Meeting of the Materials Research Society, April 15-19, 1985, San Francisco, CA.

"Gettering of Impurities During High Dose Implantation of Al or Cr into Si and the Resulting Effect on Structure and Composition," F. Namavar and J.I. Budnick, Abstracts 1984 Annual Meeting of the Materials Research Society, November 26-30, 1984, Boston, MA.

"Nuclear Resonance Profiling of High Dose Implants of Al in Si," F. Namavar, J.I. Budnick, and F.A. Otter, Abstracts 1984 Ion Beam Modification of Materials, July 16-20, 1984, Cornell University, Ithaca, New York.

"Modifications in the Unit Cell Geometry of Sputtered Niobium Films Caused by High Energy Ion Bombardment," D.M. Pease, F. Namavar, J.I. Budnick, M. Choi, J. Groeger, F.A. Otter, Y. Bruynseraede and M. Clapp, Abstracts Bulletin of the American Physical Society, Vol. 29, No. 3, March 1984.

"Porous Silicon Flat Panel Displays," N.M. Kalkhoran, F. Namavar, and H.P. Maruska, Intl. Display Research Conf. Proc. Oct 10-13, Monterey, CA (1994).

"Structural and Compositional Studies of Al Implanted Si," F. Namavar, J.I. Budnick, F.A. Otter, D. Pease, A. Fasihuddin, and H.C. Hayden, Abstracts Bulletin of the American Physical Society, Vol. 29, No. 3, March 1984.

"Study of Near Surface and Composition for High Dose Implantation of Cr into Si," F. Namavar, J.I. Budnick, H.C. Hayden, F.A. Otter, and V. Patarini, Abstracts 1983 Annual Meeting of the Materials Research Society, November 14-17, 1983, Boston, MA.

"The Influence of Implantation Condition and Target Orientation in High Dose Implantation of Al into Si," F. Namavar, J.I. Budnick, A. Fasihuddin, H.C. Hayden, F.A.

Otter, and F. Patarini, Abstracts 1983 Annual Meeting of the Materials Research Society, November 14-17, 1983, Boston, MA.

"Chemical Profiling and Structural Studies of Ion-beam Mixed Aluminum on Silicon," F. Namavar, J.I. Budnick, and F.A. Otter, Abstracts 1982 Annual Meeting of the Materials Research Society, November 1-4, 1982, Boston, MA.

"Depth Profiling of Xe Ion-mixed Films of Al on Si," F. Namavar, F.A. Otter, J.I. Budnick, Abstracts 1981 Annual Meeting of the Materials Research Society, November 16-19, 1981, Boston, MA.

"X-ray Structural Studies of Ion Beam Mixed Films of Niobium and Gold on Silicon (111) Substrates," F. Namavar, D. Pease, J.I. Budnick, and F.A. Otter, Abstracts 1981 Annual Meeting of the Materials Research Society, November 16-19, 1981, Boston, MA.

"Quadrupole Interaction of Vacancy Associated Impurities in Cubic Metals," F. Namavar, M. Rots, R. Coussement, H. Ooms, and J. Claes, Abstracts Fourth International Conference on Hyperfine Interactions, Madison, New Jersey, 1977.

"Quadrupole Interaction for Iodine in Tellurium and Zinc," H. Ooms, J. Claes, F. Namavar, H. Van de Voorde, R. Coussement, and M. Rots, Abstracts Fourth International Conference on Hyperfine Interactions, Madison, New Jersey, 1977.

"Quadrupole Moments in the Doubly Odd Iodine 132 Isotope," H. Ooms, F. Namavar, J. Claes, H. Van de Voorde, and M. Rots, Abstract Fourth International Conference on Hyperfine Interactions, Madison, New Jersey, 1977.

"Mossbauer Effect and Perturbed Angular Correlation Measurements on Xenon 129m Implanted in Diamond," M. Van Rossum, J. De Brun, G. Langouche, M. Rots, H. Ooms, J. Claes, F. Namavar, and R. Coussement, Abstracts Fourth International Conference on Hyperfine Interactions, Madison, New Jersey, 1977.

"Electric Field Gradient and Lattice Location of Tin in Tellurium," M. Van Rossum, G. Langouche, P. Boolchand, M. Rots, F. Namavar, and R. Coussement, Proceedings International Conference on Mossbauer Spectroscopy, Cracow, Poland, 1 (1975) 205.

"Angular Correlation Study of Iodine 131," G. Lhersonneau, J. De Raedt, H. Van de Voorde, H. Ooms, M. Rots, F. Namavar, and R. Haroutunian, Proceedings International Conference on Nuclear Structure and Spectroscopy, Amsterdam, The Netherlands, 1 (1974) 100.

"Detection of a Quadrupole Interaction in a Ferromagnetic Cubic Lattice by Allowed Beta-gamma Time Differential Perturbed Angular Correlation," M. Rots, F. Namavar, and R. Coussement, Contributed paper to the International Conference on Hyperfine Interactions Studies in Nuclear Reactions and Decay, Uppsala, Sweden, June 10-14, 1974.