

THEODORE D. MOUSTAKAS



Dr. Moustakas is the inaugural Distinguished Professor of Photonics and Optoelectronics at Boston University. He received his PhD from Columbia University in 1974. He held research positions at Harvard University and Exxon Corporate Research Laboratory prior to joining Boston University in 1987 as a Professor of Electrical and Computer Engineering. He is currently an Emeritus Professor of Electrical and Computer Engineering, of the Division of Materials Science and Engineering, and of the Physics Department at Boston University.

Dr. Moustakas’ research contributions cover a broad spectrum of topics in optoelectronic materials and devices, including nitride semiconductors, amorphous semiconductors, III-V compounds, diamond thin films and metallic multi-layers. He is the co-editor of eight books, including *Gallium Nitride I* (Academic Press, 1998) and *Gallium Nitride II* (academic Press, 1999), the author of chapters in eight books and 362 papers in technical journals (Google citations 18,400, h-index 69). He served as a special editor of the *Journal of Electronic Materials* and the *Journal of Vacuum Science and Technology*. He presented 138 invited, keynote, and plenary talks in national and international conferences. He was granted 39 U.S. patents and several are pending in the fields of nitride semiconductors, amorphous silicon and diamond materials. Intellectual property that resulted from his work has been licensed to more than 40 companies, including major manufacturers and users of blue and UV LEDs and lasers (Cree, Nichia, Philips, OSRAM, Apple, Amazon, Microsoft, Hewlett-Packard, Dell, Motorola, Samsung, LG, Sony, Panasonic, Sharp, NEC, Blackberry, Nokia etc.).

Dr. Moustakas is a Fellow of the American Physical Society (1994), the Electrochemical Society (1997), the Institute of Electrical and Electronic Engineering-IEEE (2014), the Optical Society of America (2021) and the Materials Research Society (2022); he is also a Charter Fellow of the National Academy of Inventors (2012). He holds an honorary doctoral degree from the Aristotle University (2003). He received the Molecular Beam Epitaxy (MBE) Innovator Award in 2010. He also received the Distinguished Scholar Award from the BU College of Engineering in 2011, and the Boston University Innovator of the Year Award in 2013.

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Education

- Ph.D. (Solid State Science and Engineering) 1974 - Columbia University
- M.Phil. (Solid State Science and Engineering) 1974 – Columbia University
- B.Sc. (Physics) 1964 - Aristotle University, Thessaloniki, Greece

Career History

- Boston University, Distinguished Professor of Photonics and Optoelectronics (2014-Present)
- Boston University, Professor of Electrical Engineering (1987-Present)
- Boston University, Professor of Physics (1991-Present)
- Boston University, Faculty Member of the Center for Photonics Research (1994-Present)
- Boston University, Associate Head of the Materials Science and Engineering Division (2008-2015)
- Exxon Corporate Research Laboratories, Senior Research Scientist (1977-1987)
- Harvard University, Research Fellow (1974-1977)
- Columbia University / IBM T. J. Watson Laboratory, Research Assistant (1969-1974)
- Theagenion Cancer Institute (Thessaloniki, Greece) Radiophysicist (1966-1968)

Visiting Positions

- Massachusetts Institute of Technology (September 2001- June 2002)
- Aristotle University, Thessaloniki, Greece (Nov. 1999, May 2001, June 2003)
- Indian Association for the Cultivation of Science, Calcutta, India (Summer 1989)
- Princeton University (Presented a series of lectures on Amorphous Semiconductors, Spring 1985)

Research Interests

- III- Nitrides Semiconductors (Optoelectronic and electronic devices)
- Molecular Beam Epitaxy of Nitride Semiconductors and other III-V compounds
- Hydride Vapor Epitaxy (HVPE) of Nitride Semiconductors.
- Diamond Thin Films
- Amorphous Semiconductors {Amorphous Si solar cells, and Chalcogenide glasses}
- Metallic Multi-layers {Ceramic /Transition Metals}

Fellowships and Awards

- In 2021: Elected **Fellow of the Optical Society of America**
- In 2014: Named the BU inaugural **Distinguished Professor of Photonics and Optoelectronics**
- In 2014: Elected **Fellow of IEEE**
- In 2013: Awarded the **Boston University Innovator of the Year Award.**
- In 2012: Elected **Charter Fellow of the National Academy of Inventors**
- In 2011: Awarded the **Distinguished Scholar Award** from the BU College of Engineering
- In 2010: Awarded the **Molecular Beam Epitaxy Innovator Award**
- In 2006: Cited in the 2006 edition of **Technology Transfer Works: 100 Cases from Research to Realization**, [Better World Project](http://www.betterworldproject.net) (www.betterworldproject.net).
- In 2003: Awarded an honorary degree “**Doctor Honoris Causa**” from the Aristotle University
- In 1997: Elected **Fellow of the Electrochemical Society**
- In 1994: Elected **Fellow of the American Physical Society**
- In 1997-98: Awarded the **BU ECE Faculty Award for Excellence in teaching**
- In 1994-1995: Was a **finalist for the BU Metcalf Award for Excellence in Teaching**
- In 1989: Appointed **Technical Advisor to UN Industrial Development Organization**

- In 1975-1976: Received the **IBM Post-Doctoral Fellowship at Harvard University**
- In 1971-1974: Received the **IBM Doctoral Fellowship at Columbia University**
- In 1969-1971: Received the **Campbell Fellowship at Columbia University**
- In 1958-1962: Received the **Greek National Scholarship at Aristotle University**

Activities in Professional Societies

- **American Physical Society**
 - Chairman of the Symposium on "Wide Band-gap Semiconductors for Blue-UV Emitters" (St. Louis, March 1996)
 - Chairman of the Symposium on "Wide Band-gap Semiconductors" (Centennial Meeting in Atlanta, March 1999).
- **Material Research Society**
 - Chairman of the 1991 Symposium on "Wide Band-gap Semiconductors"
 - Chairman of the 1996 Symposium on "III-V Nitrides"
- **The Electrochemical Society**
 - Chairman of the Workshop "III-V Nitrides Materials and Processes I" (Los Angeles, May 1996)
 - Chairman of the Workshop "III-V Nitrides Materials and Processes III" (Boston, November 1998)
 - Member of the governing body of the Dielectric Science and Technology Division
 - Member of the Honors and Awards Committee (Chairman of the Subcommittee for the Solid State Science and Technology Award)
 - Member of the Nominations Committee 1997
- **Electronic Materials Committee(1993-1999)**
 - Organization of Annual Electronic Materials Conference
 - Publication of Journal of Electronic Materials
- **North American Committee on Molecular Beam Epitaxy (2001-2011)**
 - Member of the advisory Board

Conference Organization

- Organization Committee for the "5th Gordon Conference on Plasma Chemistry" (Andover, N.H., 1978)
- Organization Committee for the Symposium "*Material Processes and Characterization Techniques for Solar Energy Devices*" of 155th Electrochemical Society Meeting (Boston, 1979)
- Program Chairman for the Symposium of the American Vacuum Society on "*Coatings for Large-scale Metallurgical, Optical and Electronic Applications*" (Clinton, N.J., 1984)
- Program Chairman for the Symposium of the American Vacuum Society on "*Strained Layer Superlattices*" (Clinton, N.J., 1986)
- Organization Committee for the "2nd International Workshop on the Physics and Applications of Amorphous Semiconductors" (Torino, Italy, 1988)
- Organization Committee for the 1st International Symposium on "*Diamond and Diamond-like Films.*" of the 175th Electrochemical Society Meeting (Los Angeles, 1989)
- Organization Committee for the 2nd International Symposium on "*Diamond and Diamond-like Film*" The Electrochemical Society Meeting (Washington, D.C., 1991)
- Program Chairman for the MRS Symposium "*Wide Band-gap Semiconductors*" (Boston, 1991)
- Organization Committee for "*Workshop on Wide gap Nitrides*" (St. Louis, Missouri, 1992)
- International Advisory Committee of the "*Third International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media*" (Guanajuato, Mexico, 1993)
- Organization Committee of the 36th Electronic Materials Conference (Boulder, Co., June 1994)

- Organization Committee for the Second Workshop on Wide Band-gap Nitrides (St. Louis, Missouri, October 1994)
- Organization Committee for the 37th Electronic Materials Conference (Un. of Virginia, June 1995)
- International Advisory Committee of the 6th International Conference on Silicon Carbide and Related Materials (Kyoto, Japan, September 1995)
- Organization Committee of the Topical Workshop on III-V Nitrides (Nagoya, Japan, 1995)
- Organization Committee of the SPIE International Symposium on "Wide Band-gap Semiconductors: Lasers, LEDs and High Temperature Devices." (San Jose, California, January 1996).
- International Advisory Committee of the "International Symposium on Blue Lasers and Light-emitting Diodes" (Chiba University, Japan, March 1996)
- Organization Committee for the "3rd Workshop on Wide Band-gap Nitrides" (St. Louis, Missouri, March 1996)
- Co-Chairman for the American Physical Society Meeting Symposium on "Wide Band-gap Semiconductors for Blue-UV emitters" (St. Louis, March 1996).
- Program Chairman of the Electrochemical Society Workshop on "III-V Nitride Materials and Processes" (Los Angeles, May 1996)
- Organization Committee for the 38th Electronic Materials Conference (University of California at Santa Barbara, June 1996)
- Program Chairman for the MRS Symposium "III-V Nitrides," (Boston, December 1996)
- Organization Committee for the 39th Electronic Materials Conference (Ft. Collins, Co., June 1997)
- Organization Committee for the III-V Nitride Materials and Processes Symposium, 192nd Meeting of the Electrochemical Society (Paris, France, Aug.1997)
- International Advisory Committee for the Second International Conference on Nitride Semiconductors (Tokushima, Japan, Oct. 1997)
- Program Committee for the IEEE Topical Meeting "Gallium Nitride Materials, Processing and Devices," (Montreal, Quebec, August 1997)
- International Advisory Committee for the 3rd European Workshop on GaN (Warsaw, Poland, June 1998)
- Organization Committee for the 40th Electronics Materials Conference (Charlottesville, Virginia, June 1998)
- Program Committee of the "Second International Symposium on Blue Lasers and Light-emitting Diodes" (Chiba University, Japan, September 1998)
- Program Chairman for the 194th Electrochemical Society Meeting Workshop on III-V Nitride Materials and Processes (Boston, November 1998).
- Co-chairman for the American Physical Society Meeting Symposium on "Wide band Gap semiconductors" (Atlanta, March 1999).
- Organizing Committee for the 41st Electronics Materials Conference (Santa Barbara, California, June 1999)
- Organizing Committee for the 6th GaN Workshop (Richmond, VA, March 2000)
- International Advisory Committee for the 4th European Workshop on GaN (Nottingham- U.K, July 2000)
- International Advisory Committee for the "International Workshop on Nitride Semiconductors" (Nagoya, Japan, Sept. 2000)
- Program Committee for the 11th International Conference on Molecular Beam Epitaxy (Beijing, China, September 2000)
- Member of the organizing committee of The Fourth International Conference on Nitride Semiconductors (Denver, Colorado, July 2001)
- Conference Committee, SPIE meeting on "Gallium-Nitride-based Technologies" (San Jose, January 21-22, 2002)

- Organizing Committee for the 7th Wide Bandgap III-Nitride Workshop (Richmond, VA, Marc. 2002).
- Organizing Committee for the Symposium “Wide Bandgap Semiconductors for Photonic and Electronic Devices and Sensors”, 201st Electrochemical Society Centennial Meeting (Philadelphia May 2002).
- International Advisory Committee of the 5th International Conference on Nitride Semiconductors (Chiba, Japan, July 2003).
- International Advisory Board of the “International Conference on Electro-ceramics” (MIT, Cambridge, MA, August 2003).
- Member of the Advisory Board of the 21st North America Molecular Beam Epitaxy Conference (Keystone, Colorado, September 2003)
- Organizing Committee for the Symposium “Wide Bandgap Semiconductors for Photonic and Electronic Devices and Sensors”, of the 2004 Joint International Electrochemical Society Meeting (Honolulu, Hawaii, September 2004).
- Member of the Advisory Board of the 22nd North America Molecular Beam Epitaxy Conference (Banff, Alberta, Canada, October 2004)
- International Advisory Committee of the 6th International Conference on Nitride Semiconductors (Bremen, Germany, August 2005).
- Member of the Advisory Board of the 23rd North America Molecular Beam Epitaxy Conference (Santa Barbara, California, September 2005)
- Member of the Program Committee of the International Molecular Beam Epitaxy Meeting (MBE-2006). (Tokyo, Japan, September, 2006)
- Member of the Advisory Board of the 24th North America Molecular Beam Epitaxy Conference (Duke University, Oct. 8, 2006)
- Member of the Program Committee of the International Workshop on Nitride Semiconductors-2006 (Kyoto, Japan, Oct. 22, 2006)
- Member of the International Advisory Committee of the 7th International Conference on Nitride Semiconductors (ICNS-2007) (Las Vegas, Sept. 16-21, 2007)
- Member of the Advisory Board of the 25th North America Molecular Beam Epitaxy Conference (NAMBE-2007) (University of New Mexico, Albuquerque, New Mexico, Sept 23-26, 2007)
- Member of the Program Committee of the 15th International Conference on Molecular Beam Epitaxy, (University of British Columbia, Vancouver, Canada, August 3-8, 2008)
- Member of the Advisory Board and Program Committee of the 26th North America Molecular Beam Epitaxy Conference (NAMBE-2009) (Princeton University August 9-12, 2009)
- Member of the International Advisory Committee of the 8th International Conference on Nitride Semiconductors (ICNS-8) (South Korea, Oct. 19-23, 2009)
- Member of the International Scientific Committee of the 7th International Conference on Nanoscience and Nanotechnologies (NN10) (Ouranopolis, Halkidiki, Greece, July 11-14, 2010)
- Member of the Advisory Board and Program Committee of the 27th North America Molecular Beam Epitaxy Conference (NAMBE-2010) (Breckenridge, Colorado, September 26-29, 2010)
- Member of the International Advisory Committee of the 9th International Conference on Nitride Semiconductors (ICNS-9) (Glasgow, Scotland, July 10-15, 2011)
- Member of the Advisory Board of the 28th North America Molecular Beam Epitaxy Conference (NAMBE-2011) (San Diego California, August 14-17, 2011)
- Member of the International Advisory Committee of the 10th International Conference on Nitride Semiconductors (ICNS-10) (Washington DC, USA, August 25-30, 2013)
- Member of the Program Committee of the International Workshop on Nitride Semiconductors (IWN 2014), Wroclaw, Poland, August 24-29, 2014)
- Member of the International Advisory Committee of the 17th International Conference on Nanosciences and Nanotechnologies (Thessaloniki, Greece July 7-10, 2020)

Patents

A. Amorphous Silicon and Amorphous Silicon Solar Cells

1. T. D. Moustakas, R. Friedman and C. R. Wronski "**Gradient Doping in Amorphous Silicon**", *US. Patent 4,251,289*, (February 17, 1981).
2. T. D. Moustakas "**Plasma Etching of Amorphous Silicon**", *US. Patent 4,285,762*, (August 25, 1981).
3. T. D. Moustakas, D. L. Morel and B. Abeles "**Hybrid Method of Making an Amorphous Silicon P-I-N Semiconductor Device**", *US-Patent 4,407, 710* (October 4, 1983)
4. T. D. Moustakas and R. Friedman. "**Sputtered P-I-N Amorphous Silicon Semiconductor Device and Method Thereof**", *US. Patent 4,417,092*, (November 22, 1983).
5. T. D. Moustakas and H.P. Maruska "**Method for Sputtering a P-I-N Microcrystalline/ Amorphous Silicon Semiconductor Device with the p- and n-layers sputtered from Boron and Phosphorous Heavily Doped Targets**", *US. Patent 4,508,609* (April 2, 1985).
6. T. D. Moustakas and H. P. Maruska "**Method for Sputtering a P-I-N Amorphous Silicon Semiconductor Devices Having Partially Crystallized p- and n-layers**", *US. Patent 4,528,082* (July 9, 1985).
7. T. D. Moustakas "**Control of the Hydrogen Bonding in Reactively Sputtered Amorphous Silicon**", *US. Patent 4,533,450* (August 6, 1985).
8. H.P. Maruska, M.C. Hicks and T. D. Moustakas "**Optical Detector and Amplifier Based on Tandem Semiconductor Devices**", *US. Patent 4, 739,383* (1988).

B. Hard Materials

9. T. D. Moustakas "**Composition of Matter that is Hard and Tough**", *US. Patent No.4,804,583* (February 14, 1989).
10. T. D. Moustakas "**Defect-Induced Control of the Structure of Boron Nitride**", *US. Patent No. 5,296,119* (March 22, 1994).

C. III-Nitride Semiconductors (US Patents Issued)

11. T. D. Moustakas "**Method for the Preparation and Doping of highly insulating monocrystalline Gallium Nitride Thin Films**", *US. Patent No. 5,385,862* (January 31, 1995).

12. T. D. Moustakas "**Highly Insulating monocrystalline Gallium Nitride Thin Films**", US Patent No. 5,686,738 (Nov. 11, 1997).
13. T.D. Moustakas and R.J. Molnar "**Method for Epitaxially Growing Gallium Nitride Layers**", US. Patent No. 5,633, 192 (May 27, 1997).
14. T. D. Moustakas and M. Misra "**Photodetectors Using III-V Nitrides**", US. Patent No.5,677,538 (October 14, 1997)
15. T. D. Moustakas and R.J. Molnar "**Device and Method for Epitaxially Growing Gallium Nitride Layers**", US. Patent No.5, 725,674 (March 10, 1998).
16. T. D. Moustakas "**Photodetectors using III-V Nitrides**", US. Patent No. 5,847,397 (Dec. 8,1998)
17. T.D. Moustakas "**Method for the preparation and doping of highly insulating monocrystalline gallium nitride thin films**", US Patent No. 6,123,768 (Sept. 26, 2000)
18. D. Doppalapudi, T.D. Moustakas, R. Mlcak and H.L. Tuller "**Semiconductor Piezoresistor**", US Patent 6,275,137 B1 (August 14, 2001).
19. D. Doppalapudi, T.D. Moustakas, R. Mlcak and H.L. Tuller "**Semiconductor Piezoresistor**", US Patent 6,441,716 (August 27, 2002).
20. Theodore D. Moustakas, "**Method of Making a Semiconductor Device with Exposure of Sapphire Substrate to Activated Nitrogen**" U.S. Patent 6,953,703 B2 (Oct. 11, 2005).
21. Theodore D. Moustakas, "**Semiconductor Device having Group-III Nitride Buffer Layer and Growth Layers**", U.S. Patent No: 7,235,819 (June 26, 2007).
22. Liberty L. Gunter, Kanin Chu, Charles R Eddy Jr., Theodore D Moustakas, Enrico Bellotti, "**GaN-based Permeable-Base Transistor and method of fabrication**", US Patent No: US 7,413,958B2 (August 19,2008)
23. Theodore D. Moustakas, "**Semiconductor Device having Group-III Nitride Buffer Layer and Growth Layers**", U.S. Patent No: 7,663,157 (February 16, 2010).
24. Theodore D. Moustakas, Jasper S. Cabalu, "**Optical Devices featuring textured semiconductor layers**" U. S. Patent No: 7,777,241 B2 (Issue date: August 17, 2010)
25. Theodore D. Moustakas and Jasper Cabalu, "**Optical Devices Featuring Textured Semiconductor Layers**" U. S. Patent No. 8,035,113 B2 (Issue date: October 11, 2011)
26. Liberty L. Gunter, Kanin Chu, Charles R Eddy Jr., Theodore D. Moustakas, Enrico Bellotti, "**GaN-based Permeable-Base Transistor and method of fabrication**", US Patent No: RE42,955E (Issue Date: November 22, 2011)
27. Theodore D. Moustakas and Jasper Cabalu, "**Optical Devices Featuring Textured Semiconductor Layers**" U. S. Patent No. 8,237,175 B2 (Issue Date: August 7, 2012)
28. Liberty L. Gunter, Kanin Chu, Charles R Eddy Jr., Theodore D. Moustakas, Enrico Bellotti, "**GaN-based Permeable-Base Transistor and method of fabrication**", US Patent No: 8,247,843 (Issue Date: August 21, 2012)

29. Theodore D. Moustakas and Adrian Williams, **“Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma”** US Patent No. 8,257,987 B2 (Issue Date: Sept. 4, 2012)
30. Theodore D. Moustakas, Adam Moldawer, Anirban Bhattacharyya, Joshua Abell, **“Optical Devices Featuring Non-polar Textured Semiconductor Layers”** U. S. Patent No. 8,592,800 (Issue Date: Nov. 26, 2013)
31. Yitao Liao and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same”** U. S. Patent No. 8,723,189 (Issue Date: May 13, 2014)
32. Yitao Liao and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diode structures and Methods of Manufacturing the same”** U. S. Patent No. 8,987,755 (Issue Date: March 24, 2015).
33. Theodore D. Moustakas and Adrian Williams, **“Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma”** U.S. Patent No. 9,230,818 B2 (Issue date: Jan. 5, 2016)
34. Yitao Liao and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same”** US Patent No. 9,318,652 (Issue date: April 19, 2016).
35. Yitao Liao and Theodore D. Moustakas, **“High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations”** US Patent No. 9,627, 580 B2 (Issue date: April 18, 2017).
36. Yitao Liao and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same”**, US Patent No. 9,780,254 (Issue date: Oct. 3, 2017)
37. Gordon C. Brummer, Denis M. Nothern and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diodes”**, US Patent No. 10,361,343 B2 (Issue date: July 23, 2019)
38. Yitao Liao and Theodore D. Moustakas, **“High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations”**, US Patent No. 10,535,801 (Issue date: Jan. 14, 2020)
39. Yitao Liao and Theodore D. Moustakas, **“Ultraviolet Light Emitting Diode Structures and Methods of Manufacturing the Same”**, US Patent No. 10,593,830 B1 (Issue date March 17, 2020)

D. III-Nitride Semiconductors (Patents Issued in other Countries)

40. T.D. Moustakas and Mira Misra **“ Photodetectors Using III-V Nitrides”** Canadian Patent No. 2,226,439 (Issue date: April 10, 2001)
41. Theodore D. Moustakas, **"Highly insulating monocrystalline Gallium Nitride Thin Films"**, Japanese Patent No. 3,817,206 (Issue date: June 16, 2006)
42. Theodore D. Moustakas **“Semiconductor Device Having Highly Insulating Monocrystalline Gallium Nitride Thin Films”** Japanese Patent No. 4,716,526 (Issue date: April 8, 2011)
43. Theodore D. Moustakas and Jasper Cabalu, **“Optical Devices Featuring Textured Semiconductor Layers”** European Patent No. 1,735,838 (Issue date: Sept. 8, 2011)
44. Yitao Liao and Theodore D. Moustakas, **“High Efficiency Ultraviolet Light Emitting Diodes with Band**

Structure Potential Fluctuations” Chinese Patent No. ZL201180021530.9 (Issue date: Nov. 25, 2015).

45. Yitao Liao and Theodore D. Moustakas, “**High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations**” Taiwan Patent No. 1649895 (Issue date: Feb. 1, 2019).
46. Yitao Liao and Theodore D. Moustakas, “**High Efficiency Ultraviolet Light Emitting Diode with Band Structure Potential Fluctuations**”, Chinese Patent No. ZL201510631688.8 (Issue date: August 18,2020)
47. Yitao Liao and Theodore D. Moustakas, “**High efficiency ultraviolet light emitting diode with band structure potential fluctuations**”, German patent application 112011101530.5 based on PCT/US2011/034724 (Allowed Dec. 9, 2020)

E. III-Nitride Semiconductors (Patent Applications)

48. T.D. Moustakas “**Improved Retro reflective Sheet Material**”, U.S.S.N 08/017, 188 (February 5, 1993) (Abandoned)
49. H.M. Ng and T.D. Moustakas “**Group III-Nitride VCSELs (Vertical Cavity Surface Emitting Lasers)**”, US Provisional Patent Application No. 60/178,236 (filed Jan 26, 2000) (Abandoned).
50. Harry L. Tuller, Theodore D. Moustakas, Yong K. Min , “**Method for p-type doping of wide band gap oxide Semiconductors**” United States Patent Application 2004/0108505 (June 10, 2004)
51. Theodore D. Moustakas, Jasper S. Cabalu, “**Formation of textured III- Nitride Templates for the Fabrication of Efficient Optical Devices**” US Provisional Application No. 60/562,489 (Filed April 15, 2004)
52. Theodore D. Moustakas, Jasper S. Cabalu, “**Formation of Textured III- Nitride Templates for the Fabrication of Efficient Optical Devices**” US Provisional Application No. 60/615,047 (Filed Oct. 1, 2004)
53. Theodore D. Moustakas, Jasper S. Cabalu, “**Nitride LEDs Based on Flat and “Wrinkled” Quantum Wells**” US Provisional Application No. 60/645,704 (Filed January 21, 2005).
54. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**”, International Patent Application No: PCT /US05/012849 (Filed April 15, 2005). International Publication Number WO 2005/104236 A3 (November 3, 2005).
55. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**”, US Provisional Patent Application No 60/732,034 (Filed 10/31/2005)
56. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**”, International Patent Application No: PCT/US2006/042483 (Filed Oct. 31, 2006). (International Publication Date: 10 May 2007; **International Publication Number WO 2007/053624 A2**)
57. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**” European Patent Application No. 05 744 389.7 (Published on Dec. 27, 2006- **Publication number 1735838**).
58. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma**” US Provisional Application No. 60/648,777 (Filed Feb.1, 2005)
59. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist Technique using an**

- Inductively Coupled Plasma**” US Provisional Application No. 60/764, 389 (Filed Feb.2, 2006)
60. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma**” US Patent Application No. 60/880, 758 (Filed Jan. 17, 2007)
 61. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma**”, PCT International Application No. **PCT/US2007/002943**(Filed Feb. 2, 2007).
 62. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist Technique using an Inductively Coupled Plasma**” US Patent Application No. 12/223,505 (Filed 7/31/ 2008) Publication No: US-2009-0236693-A1 (Publication Date 09/24/2009)
 63. Theodore D. Moustakas and Philip Lamarre, “**Methods for growing selective areas on substrates and Devices thereof**”, Provisional Patent Application No. 60/961,829.
 64. T. Moustakas, W. Stacey, P. Lamarre, R. Morris “**Growth of high temperature, high power, high speed electronics**”, US Patent App. 10/419,294.
 65. Theodore D. Moustakas, “**Low-cost blue/UV LEDs with very high photon conversion and extraction Efficiency for white lighting**” U.S. Provisional Patent Application No. 61/068,605
 66. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**” European Patent Application No. 06 827,176.6 (Published on August 6, 2008- **Publication number 1952 449**)
 67. Theodore D. Moustakas, “**Semiconductor Device Having Highly Insulating Monocrystalline Gallium Nitride Thin Films**”, Japanese Patent Application 2007-24009 (Filed Feb. 2, 2007).
 68. Theodore D. Moustakas and Jasper Cabalu, “**Optical Devices Featuring Textured Semiconductor Layers**” Canadian Patent Application No 2, 267, 880
 69. Theodore D. Moustakas, Adam Moldawer, Anirban Bhattacharyya, Joshua Abell, “**Optical Devices Featuring Non-polar Textured Semiconductor Layers**” PCT International Application No: PCT/US2009/036554, (International publication number: WO 2009/111790 A1, Publication Date: Sept. 11, 2009)
 70. Theodore D. Moustakas, Adam Moldawer, Anirban Bhattacharyya, Joshua Abell, “**Optical Devices Featuring Non-polar Textured Semiconductor Layers**” U. S. Patent Application No. 12/920,391 (Filed 10/21/2010)
 71. Yitao Liao and Theodore D. Moustakas, “**Method of growing an AlGaIn layer with band structure Potential fluctuations and manufacturing ultraviolet light emitting devices containing the same**” U.S Provisional Patent Application No. 61/329,947 (Filed April 30, 2010)
 72. Yitao Liao and Theodore D. Moustakas, “**High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations**” PCT International Application No: PCT/US2011/034724 (Filed on May 2, 2011). International publication number: WO 2012 / 012010 A8 (publication date: 26 January 2012)
 73. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structure and Method of Manufacturing the same**” U.S Provisional Patent Application No. 61/583,848 (Filed January 6, 2012)
 74. Theodore D. Moustakas, “**Semiconductor Device Having Highly Insulating Monocrystalline Gallium Nitride Thin Films**” Japanese Patent Application 2012-156705 (Filed July 12, 2012); Japanese Publication

No. 2012-248856 (Publication Date: December 12, 2012)

75. Theodore D. Moustakas and Adrian Williams, “**Planarization of GaN by Photoresist technique using an Inductively Coupled Plasma**” US Patent Application No. 13/ 603, 130 (Filed Sept. 4, 2012, Allowed Oct. 28, 2015).
76. Yitao Liao and Theodore D. Moustakas, “**High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations**”, US Patent Application No. 13/646,038 (Filed 10/5/2012)
77. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same**” US Patent Application No. 13/734,333 (Filed 1/4/2013)
78. Theodore D. Moustakas and Jasper Cabalu, “**Semiconductor Device, Method for controlling Electroluminescence Spectrum, variable color indicator, Variable color illumination device, Two-Dimensional Color display and projector**”, Japanese Patent Application No. 2008-538970
79. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same**” US Patent Application No. 14/250,914 (Filed 4/11/2014, allowed 11/13/2014))
80. Gordon C. Brummer, Denis M. Nothorn and T. D. Moustakas, “**High Efficiency Deep UV Light Emitting Diodes**”, U.S Provisional Patent Application No. 62/020119 (Filed 7/2/2014)
81. Akintunde Akinwande, Theodore Moustakas, Jonah Jacob, and Roberto Paiella “**Micro-Electron Beam Pumped Deep UV Laser**”, U.S Provisional Patent Application No: 62/096,595 (Filed Dec. 24, 2014)
82. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same**” US Patent Application No. 14/626,221 (Filed 2/19/2015)
83. Yitao Liao and Theodore D. Moustakas, “**High Efficiency Ultraviolet Light Emitting Diodes with Band Structure Potential Fluctuations**”, US Patent Application No. 14/681,327 (Filed 4/8/2015)
84. Gordon C. Brummer, Denis M. Nothorn and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diodes**”, International Application No. PCT / US2015/ 039090 (Filed 7/2/2015), International Publication No. WO 2016/004374 A1 (publication date: January 7th, 2016)
85. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same**” US Patent Application No. 14/846,485 (Filed 09/04/2015)
86. Gordon C. Brummer, Denis M. Nothorn and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diodes**”, US Patent Application No. 15/321,507 (Filed 12/22/2016)
87. Gordon C. Brummer, Denis M. Nothorn and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diodes**”, US Patent Application Publication number **US-2017-0200865-A1** (publication date: July 13, 2017)
88. Yitao Liao and Theodore D. Moustakas, “**Ultraviolet Light Emitting Diode structures and Method of Manufacturing the same**” US Patent Application No. 15/721,786 (Filed Sept. 30, 2017)
89. Yitao Liao and Theodore D. Moustakas, “**High efficiency ultraviolet light emitting diode with electron tunneling**”, US Patent Application No. 16/723,966 (Filed Dec. 20, 2019). Publication No: US-2020/0287084-A1 (Publication Date 09/10/2020)

90. Yitao Liao and Theodore D. Moustakas, "**Ultraviolet Light Emitting Diode Structures and Methods of Manufacturing the Same**" US Patent Application No. 16/781,876 (Filed Feb. 4, 2020)

Books

1. "**Gallium Nitride (GaN) I**" J.I. Pankove and T.D. Moustakas Eds, in *Semiconductors and Semimetals*, Vol. 50 (Academic Press, 1998)
2. "**Gallium Nitride (GaN) II**" J.I. Pankove and T.D. Moustakas Eds in *Semiconductors and Semimetals*, Vol. 57 (Academic Press, 1999).
3. "**Wide Band-gap Semiconductors**" T. D. Moustakas, J.I. Pankove and Y. Hamakawa Eds. *Mat. Res. Soc. Proc. Vol.242* (MRS Pittsburgh, Pa., 1992).
4. "**III-V Nitrides**", F. Ponce, T. D. Moustakas, I. Akasaki and B. Monemar Eds. *Mat. Res. Soc. Proc. Vol. 449* (MRS Pittsburgh, Pa., 1997).
5. "**III-V Nitride Materials and Processes I**" T. D. Moustakas, J.D. Dismukes and S.I. Pearton Eds. *Electrochemical Society Proc. Vol.96-11* (Electrochemical Society, Pennington, N.J., 1996).
6. "**III-V Nitride Materials and Processes II**", C.R. Abernathy, W.D. Brown, D.N. Buckley, J.P. Dismukes, M. Kamp, T.D. Moustakas, S.J. Pearton, F. Ren Eds. *Electrochemical Society Proc. Vol.97-34* (Electrochemical Society, Pennington, N.J., 1997).
7. "**III-V Nitride Materials and Processes III**," T.D. Moustakas, S. Mohny and S.J Pearton Eds, *Electrochemical Society Proc. Vol.98-18* (Electrochemical Society, Pennington, N.J., 1999).
8. "**Diamond and Diamond-like Films**," - J.P. Dismukes, B.S. Meyerson, T. D. Moustakas, K.E. Spear, K.V. Ravi and M. Yoder Eds. *Electrochemical Society Proceedings Vol.89* (The Electrochemical Society, Pennington, N.J., 1989).

Editorial Activities

1. **III-V Nitrides and Silicon Carbide**, M. Melloch and T. D. Moustakas, Feature Editors. *Journal of Electronic Materials* Vol.**24**, 1995
2. **Coatings for Large-Scale Metallurgical, Optical and Electronic Applications**, T. D. Moustakas and H. Witzke, Feature Editors (*Journal of Vacuum Science and Technology B*, Vol.2, 1984)
3. **Strained Layer Super lattices**, T. D. Moustakas and T. Tiedje, Feature Editors. (*Journal of Vacuum Science and Technology B*, Vol.4, 1986)
4. **Proceedings of the State-of-the-Art Program on Compound Semiconductors XXXIX**, R.F. Kopf, D.N. Buckley, F. Ren, C. Monier, K. Shiojima, A.G. Baca, H.M. Ng, T.D. Moustakas, S.J. Pearton, Editors. (*The Electrochemical Society, Proceedings Series, Pennington, NJ, 2003*)

Chapters in Books

1. T. D. Moustakas, "**Sputtering of Hydrogenated Amorphous Silicon**", in *Semiconductors and Semimetals*, Vol. 21A, J.I. Pankove Ed. (Academic Press, N.Y., 1984) Chapter 4
2. T. D. Moustakas, "**CVD Diamond Synthesis Methods and Effects of Process Parameters**", in *Synthetic Diamond: Emerging CVD Science and Technology*. K.E. Spear and J.P. Dismukes Eds (John Wiley and Sons, N.Y., 1994). Chapter 6
3. J. I. Pankove and T. D. Moustakas "**Introduction: A Historical Survey of Research of Gallium Nitride**", in *Gallium Nitride (GaN) I*, J.I. Pankove and T. D. Moustakas Eds., *Semiconductors and Semimetals*. Vol.50 (Academic Press, N.Y.1998) Chapter 1.
4. T. D. Moustakas "**Growth of III-V Nitrides by Molecular Beam Epitaxy**", in *Gallium Nitride (GaN) II*, J.I. Pankove and T. D. Moustakas Eds, *Semiconductors and Semimetals*. Vol.57 (Academic Press, N.Y., 1999) Cpt. 2.
5. H.M. Ng and T. D. Moustakas "**Intermetallic Compounds by Molecular Beam Epitaxy**" in *Intermetallic Compounds: Principles and Practice Vol. 3*, J. H. Westbrook and R.L. Fleischer Eds. (John Wiley Ltd., N.Y 2002), Chapter 37.
6. D. Doppalapudi and T.D. Moustakas "**Epitaxial Growth and Structure of III- V Nitride Thin Films**" in "*Handbook of Thin Film Materials*", Edited by H.S. Nalwa, Vol. 4 , (Academic Press, 2002), Chapter 2.
7. T. D. Moustakas, "**Growth of Wide-Band Gap Semiconductors by MBE**" in *Gallium Nitride Based Technologies*, Edited by Marek Osinski (SPIE, Optical Engineering Press, 2002), pp 1-46
8. Tao Xu and Theodore D. Moustakas, "**Growth and Characterization of III-Nitride Quantum Dots and their Applications to Emitters**" in *Self-Assembled Quantum Dots*, Edited by Zhiming M. Wang (Springer, 2008), Chapter 15

Scientific Papers

1974

1. A.J. Grant, T. D. Moustakas, T. Penney and K. Weiser, “**Conduction in Localized Band-tail and in Extended States, I. Experimental Studies of Transport in Amorphous As₂Te₃,**” in *Amorphous and Liquid Semiconductors*, J. Stuke and W. Brenig, eds., (Taylor and Francis, Ltd., London, 1974), p.325.
2. K. Weiser, A. J. Grant and T. D. Moustakas, “**Conduction in Localized Band-tail and in Extended States, II. Development of a Model,**” in *Amorphous and Liquid Semiconductors*, J. Stuke and W. Brenig, eds., (Taylor and Francis, Ltd., London, 1974), p. 335.

1975

3. T. D. Moustakas and K. Weiser, “**Transport and Recombination Properties of Amorphous Arsenic Telluride,**” *Phys. Rev. B*, **12**, 2248 (1975)
4. T. D. Moustakas, K. Weiser and A. J. Grant, “**Anomalous Thermoelectric Power of Some Liquid Chalcogenide Systems,**” *Solid State Commun.*, **16**, 575 (1975)

1976

5. T. D. Moustakas and G. A. N. Connell “**Amorphous Ge_xH_{1-x} Bolometers,**” *J. Appl. Phys.*, **47**, 1322 (1976).
6. T. D. Moustakas, G. A. N. Connell and W. Paul, “**Photoconductivity in the Amorphous Ge_xH_{1-x} System,**” in *Electrical Phenomena in Non-Crystalline Semiconductors*, B. T. Kolomeits, ed., (Academy of Science of the USSR, 1976), p. 310.
7. W. Paul, A. J. Lewis, G. A. N. Connell and T. D. Moustakas, “**Doping, Schottky Barrier and p-n Junction Formation in Amorphous**

Ge and Si by RF Sputtering,” *Solid State Commun*, **20**, 969 (1976).

1977

8. T. D. Moustakas and W. Paul, “**Transport and Recombination in Sputtered Hydrogenated Amorphous Ge,**” *Phys. Rev. B*, **16**, 1564 (1977).
9. T. D. Moustakas, D. A. Anderson and W. Paul, “**Preparation of Highly Photoconductive Amorphous Silicon by RF Sputtering,**” *Solid State Commun*, **223**, 155 (1977).
10. D. A. Anderson, T. D. Moustakas and W. Paul, “**Effect of Hydrogen on the Transport Properties of Amorphous Silicon,**” in *Amorphous and Liquid Semiconductors*, W. E. Spear, ed. (CICL, University of Edinburgh, 1977), p. 334.
11. W. Paul, T. D. Moustakas, D. A. Anderson and E. Freeman, “**Properties of a-GaAs Containing H and Other Dopants,**” in *Amorphous and Liquid Semiconductors*, W. E. Spear, ed. (CICL, University of Edinburgh, 1977), p.467.

1979

12. T. D. Moustakas, “**Sputtered Hydrogenated Amorphous Silicon,**” *J. of Electronic Materials*, **8**, 391 (1979).

1980

13. T. D. Moustakas, C. R. Wronski and D. L. Morel, “**Photovoltaic Properties of Reactively Sputtered a-SiH_x Films,**” *J. of Non-Crystal. Solids*, **35-6**, 719 (1980).
14. T. D. Moustakas, “**Photo generation, Optical Absorption and Transport in Hydrogenated Sputtered Amorphous Silicon,**” *Solid State Communications* **35**, 745 (1980).

15. J. P. deNeufville, T. D. Moustakas, A. F. Ruppert and W. A. Lanford, "**Optical Properties of Reactively Sputtered a-SiH_x Films,**" *J. of Non-Crystal. Solids*, **35-6**, 481 (1980).
16. T. Tiedje, B. Abeles, D. Morel, T. D. Moustakas and C. R. Wronski, "**Electron Drift Mobility in Hydrogenated a-Si,**" *Appl. Phys. Lett.*, **36**, 695 (1980).

1981

17. T. Tiedje, T. D. Moustakas and J. Cebulka, "**Effect of Hydrogen on the Density of Gap States in Reactively Sputtered Amorphous Silicon,**" *Phys. Rev. B*, **23**, 5634 (1981).
18. D. J. Kalnicky and T. D. Moustakas, "**Determination of Argon in Sputtered Silicon Films by Energy Dispersive X-ray Fluorescence Spectrometry,**" *Analytical Chemistry*, **53**, 1972 (1981).
19. T. D. Moustakas, C. R. Wronski and T. Tiedje, "**Electron-hole Recombination in Reactively Sputtered Amorphous Silicon Solar Cells,**" *Appl. Phys. Lett.*, **39**, 721 (1981).
20. D. L. Morel and T. D. Moustakas, "**Effect of Hydrogen on the Diode Properties of Reactively Sputtered Amorphous Silicon Schottky Barrier Structures,**" *Appl. Phys. Lett.*, **39**, 612 (1981).
21. T. D. Moustakas, T. Tiedje and W. Lanford, "**Experimental Evidence for a Kinetic Model of Hydrogen Incorporation into Sputtered Amorphous Silicon,**" in *Tetrahedrally Bonded Amorphous Semiconductors*, R. A. Street et. al., eds., AIP Conference Proc., **73** (1981), p.20.
22. S. Ray, Z. Vardeny, J. Tauc, T. D. Moustakas and B. Abeles, "**Relaxation of Photo-Induced Sub-band-gap Absorption in a-Si:H,**" in *Tetrahedrally Bonded Amorphous Semiconductors*, R.A. Street, et. al. eds., AIP Conf. Proc., **73** (1981), p. 253.
23. G. D. Cody, T. Tiedje, B. Abeles, T. D. Moustakas, B. Brooks and Y. Goldstein, "**Disorder and the Optical Absorption Edge of Hydrogenated Amorphous Silicon,**" *J. De Physique, Colloque C4, Supplement au No 10 Tome 42*, (1981), p. C4-301.
24. T. Tiedje, T. D. Moustakas and J. Cebulka, "**Temperature Dependence of the Electron Drift Mobility in Hydrogenated a-Si Prepared by Sputtering,**" *J. De Physique, Colloque C4, Supplement au No 10 Tome 42*, (1981), p. C4-155.

1982

25. T. D. Moustakas and R. Friedman, "**Amorphous Silicon P-I-N Solar Cells Fabricated by Reactive Sputtering,**" *App. Phys. Lett.*, **40**, 515 (1982).
26. T. D. Moustakas, R. Friedman and B. R. Weinberger, "**Effect of Phosphorus and Boron Impurities on Amorphous Silicon Solar Cells,**" *Appl. Phys. Lett.*, **40**,587 (1982).
27. T. D. Moustakas, "**Studies of Thin Film Growth of Sputtered Hydrogenated Amorphous Silicon,**" *Solar Energy Materials*, **8**, 187 (1982).

1983

28. T. D. Moustakas, H. P. Maruska, R. Friedman and M. C. Hicks, "**Effect of Boron Compensation on the Photovoltaic Properties of Amorphous Silicon Solar Cells,**" *Appl. Phys. Lett.*, **43**, 368 (1983).
29. T. D. Moustakas and H. P. Maruska, "**Effect of Power and Hydrogen in the Discharge on the Photovoltaic Properties of Sputtered Amorphous Silicon,**" *Appl. Phys. Lett.*, **43**, 1037 (1983).
30. H. P. Maruska, T. D. Moustakas and M. C. Hicks, "**Effects of Optical Stress on the Properties of Sputtered a-Si Solar Cells and Thin Films,**" *Solar Cells*, **9**, 37 (1983).

31. T. D. Moustakas, (INVITED) “**Correlation Between Deposition Parameters and Performance of Sputtered Amorphous Silicon Solar Cells,**” in *Photovoltaics for Solar Energy Applications II*, D. Adler, ed., *Proc. SPIE* **407**, pp. 55-64 (1983).

32. T. D. Moustakas, (INVITED) “**High Efficiency Amorphous Silicon Solar Cells Fabricated by Reactive Sputtering,**” in *Material and New Processing Technologies for Photovoltaics*, J. A. Amick, V. K. Kapur and J. Dietl, Eds., **83-11**, p. 291. (The Electrochemical Society, Pennington, N.J., 1983).

33. T. D. Moustakas, (INVITED) “**Progress in Amorphous Silicon Solar Cells Produced by Reactive Sputtering,**” in *Proc of 5th E.C. Photovoltaic Solar Energy Conference*, W. Palz and F. Fittipaldi eds., pp. 698-706 (D. Reidel Publishing Co., 1983).

1984

34. T. D. Moustakas, “**Sputtering of Hydrogenated Amorphous Silicon**” in *Semiconductors and Semimetals Vol. 21A*, Chapter 4, J.I. Pankove, ed., (Academic Press, N.Y., 1984).

35. H. P. Maruska, M.C. Hicks, T. D. Moustakas and R. Friedman, “**Optically controlled Amorphous Silicon Photosensitive Device,**” *IEEE Transactions on Electron Devices*, **Vol. 31**, 1343-1345 (1984).

36. H. P. Maruska, and T. D. Moustakas, “**Influence of the Wavelength of Incident Light on Shunt Conductance and Fill Factor in Amorphous Silicon Solar Cells,**” *IEEE Transactions on Electron Devices*, **Vol. 31**, 551-558 (1984).

37. C. R. Wronski and T. D. Moustakas, “**Optoelectronic Properties of Boron Compensated Amorphous Silicon Solar**

Cells,” in *Proc. 17th IEEE Photovoltaic Specialist Conf.*, **341-6** (1984).

38. T. Dragone, S. Wagner and T. D. Moustakas, “**Mechanical Properties of Sputtered a-Si:H Films as a Function of Hydrogen Content,**” in *Technical Digest of the 1st International Photovoltaic Science and Engineering Conf.*, (Kobe, Japan), p. 711 (1984).

1985

39. T. D. Moustakas, “**Properties and Photovoltaic Applications of Microcrystalline Silicon Films Prepared by RF Reactive Sputtering,**” *J. Appl. Phys.*, **58**, 983, (1985).

40. T. D. Moustakas, (INVITED) “**Growth and Crystallization Mechanism of Microcrystalline Silicon Films Produced by Reactive RF Sputtering,**” in *Tetrahedrally Bonded Amorphous Semiconductors*, D. Adler and H. Fritzsche, eds., (Plenum Publishing Corp. 1985), p. 93-105.

41. T. D. Moustakas, “**An Overview of Amorphous Silicon Solar Cells,**” in *Materials and New Processing Technology for Photovoltaics*, V. K. Kapur, J.P. Dismukes and S. Pizzini, Eds., *Proc. Electr. Soc.* **85-9**, pp. 9-29 (1985).

42. T. D. Moustakas, D. A. Weitz, E. B. Prestridge and R. Friedman, “**Structural Studies of Microcrystalline Silicon Films Produced by Sputtering,**” in *Plasma Synthesis and Etching of Electronic Materials*, *Mat. Res. Soc. Symp. Proc.*, **38**, 401, (1985).

1986

43. T. D. Moustakas, “**Photovoltaic Properties of Amorphous Silicon Produced by Reactive Sputtering,**” *Solar Energy Materials*, **13**, 373-384 (1986).

44. T. D. Moustakas and R. A. Friedman, “**Growth by Molecular Beam Epitaxy of High Purity GaAs Films,**” *Semiconductor*

Based Hetero-Structures: Interfacial Structure and Stability Martin L. Green, ed., (The Metallurgical Society of AIME, 1986), pp. 263-273.

1987

45. H. W. Deckman, B. Abeles, J. Dunsmuir, C. B. Roxolo and T. D. Moustakas, "**Molecular-Scale Microporous Superlattices,**" *MRS Bulletin*, **XII**, 24-26 (1987).
46. J. Shinar, R. Shinar, S. Mitra, M. L. Albers, H. R. Shanks and T. D. Moustakas, "**Porous Morphology and Oxidation Kinetics in Amorphous Silicon RF Sputtered by He/H₂,**" *Mat. Res. Soc. Symp. Proc.*, **95**, 183 (1987).
47. T. D. Moustakas, J. P. Dismukes, Ling Yee, K. R. Walton and J. P. Tiedje, "**Polycrystalline Diamond Deposition From Methane-Hydrogen Mixtures,**" *J. Electrochemical Society* Vol. **134**, pp. 1164-1173 (1987).

1988

48. T. D. Moustakas, (INVITED) "**Molecular Beam Epitaxy: Thin Film Growth and Surface Studies,**" *MRS Bulletin*, **XIII**, pp. 29-34 (1988).
49. H. W. Deckman and T. D. Moustakas, "**Microporous GaAs/GaAlAs Superlattices,**" *J. Vac. Sci. & Technol.*, **B6**, 316 (1988)
50. R. Clarke, T. D. Moustakas, K. Bajema, D. Grier, W. Dos Passos and R. Merlin, "**Structural Fluctuations and Randomness in GaAs - Al_x Ga_{1-x} As Superlattice,**" *Superlattice and Microstructures*, **4**, 371-374 (1988).
51. T. D. Moustakas, (INVITED) "**The Role of Hydrogen in Trace Impurity Doping of Amorphous Silicon,**" *1st International Symposium on Physics and Applications of Amorphous Semiconductors*, F. Demichelis, ed., (World Scientific Publishing Co., 1988)

pp. 399-411.

52. T. D. Moustakas, J. Y. Koo and A. Ozekcin, "**Growth and Structure of Tungsten Carbide Transition Metal Superlattices,**" *MRS Symp.*, **103**, 41 (1988).
53. T. D. Moustakas, (INVITED) "**Synthesis of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons,**" *2nd International Seminar on Metal Organic and Plasma Assisted CVD*, J. P. DeNeufville, ed., pp. 358-374, (1988).

1989

54. Y. Bar-Yam and T. D. Moustakas, "**Defect-induced Stabilization of Diamond Films,**" *Nature*, **342**, 786 (1989).
55. T. D. Moustakas, J. Y. Koo, A. Ozekein and J. Scanlon, "**Structure of Tungsten Carbide-Cobalt Multilayers,**" *J. Appl. Phys.*, **65**, 4256 (1989).
56. T. D. Moustakas, "**The Role of the Tungsten Filament in the Growth of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons,**" *Solid State Ionics*, **32-33**, 861-868 (1989).
57. R. G. Buckley, T. D. Moustakas, Ling Ye and J. Varan, "**Characterization of Filament-assisted Chemical Vapor Deposition Diamond Films Using Raman Spectroscopy,**" *J. Appl. Phys.*, **66**, 3595 (1989).
58. M. M. Disko and T. D. Moustakas, "**Electron Microscopy and Spectroscopy of Vapor Deposited Diamond,**" *Mat. Res. Soc. Symp. Proc.*, **138**, 261 (1989).
59. A. Werner, T. D. Moustakas and M. Kunst, "**Transient Photoconductivity in GaAs Films Grown by Molecular Beam Epitaxy,**" *Mat. Res. Soc. Symp. D.*, **145**, 461 (1989).
60. A. Werner, A. Agarwal, T. D. Moustakas and M. Kunst, "**Charge Carrier Recombination**

in Al_xGa_{1-x}As Studied by Time-resolved Microwave Conductivity Experiments,”
Mat. Res. Soc. Symp. Proc., **145**, 481 (1989).

1990

61. T. D. Moustakas, J. Scanlon, J. Y. Koo, H. W. Deckman, A. Ozekcin, R. Friedman and J. A. Henry, “**Tungsten Carbide-transition Metal Multilayers,**” *Mat. Sci. and Eng. B*, **Vol. 6**, 179-189 (1990).
62. A. Werner, M. Kunst and T. D. Moustakas, “**Influence of the Impurity Concentration on Charge Carrier Dynamics in GaAs Films,**” *Appl. Phys. Lett.*, **56**, 1558 (1990).
63. T. D. Moustakas and R. G. Buckley, , (INVITED) “**Growth of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbon,**” in *Physics & Applications of Amorphous Semiconductors*, F. Demichelis Ed. (World Scientific, 1990), pp. 108-127.
64. Y. Bar-Yam and T. D. Moustakas, “**Theory and Experiment: Defect Stabilization of Diamond Films Through Multiple-regrowth,**” *Mat. Res. Soc. Symp. Proc.*, **162**, 201-204 (1990).
65. T.D. Moustakas, (INVITED) “**Nucleation and Growth of Diamond Thin Films,**” *Proc. on the 20th International Conference on the Physics of Semiconductors*, E.M. Anastassakis and J.D. Joannopoulos, eds. (World Scientific, 1990) pp. 320-327.
66. E. DeObaldia, T. D. Moustakas, J. Hettengier and J. S. Brooks, “**Pt-SiO₂ Granular Metals for Cryogenic Thermometry in High Magnetic Fields,**” *Mat. Res. Soc. Symp. Proc.*, **195**, 659 (1990).
67. C. R. Eddy and T.D. Moustakas “**Growth of GaN single crystal films by electron-cyclotron resonance –assisted Molecular Beam Epitaxy**”, *J. of Electronic Materials*, **19**, 17 (1990)

1991

68. T. Lei, M. Fanciulli, R. J. Molnar, T. D. Moustakas, R. J. Graham and J. Scanlon “**Epitaxial Growth of Zincblende and Wurtzitic Gallium Nitride Thin Films on (001) Silicon,**” *Appl. Phys. Lett.*, **59**, 944 (1991).
69. T. Lei, M. Toledo-Quinones, R. J. Molnar and T. D. Moustakas, “**Excitonic Transitions in GaAs-AlGaAs Superlattices Studied with Lateral Photoconductivity,**” *Solid State Comm.*, **80**, 129-133 (1991).
70. R. J. Graham, T. D. Moustakas, M. M. Disko, “**Cathodoluminescence Imaging of Defects and Impurities in Diamond Films Grown by Chemical Vapor Deposition,**” *J. Appl. Phys.*, **69**, 3212 (1991).

1992

71. T. Lei, T. D. Moustakas, R. J. Graham, Y. He and S. J. Berkowitz, “**Epitaxial Growth and Characterization of Zinc-blende Gallium Nitride on (001) Silicon,**” *J. Appl. Phys.*, **71**, 4933 (1992).
72. M. Fanciulli and T. D. Moustakas, “**Study of Defects in Diamond Films with Electron Paramagnetic Resonance Measurements,**” *J. of Diamond and Related Materials*, **1**, 773 (1992).
73. T. D. Moustakas, R. J. Molnar, T. Lei, G. Menon and C.R. Eddy Jr., “**A Comparative Study of GaN Films Grown on Different Faces of Sapphire by ECR-assisted MBE,**” *Mat. Res. Soc. Symp. Proc.*, **242**, T. D. Moustakas, J. I. Pankove and Y. Hamakawa, eds., (1992), p. 427.
74. T. Lei and T. D. Moustakas, “**A Comparative Study of GaN Epitaxy on Si (001) and Si(111) Substrates,**” *Mat. Res. Soc. Symp. Proc.*, **242**, T. D. Moustakas, J. I. Pankove and Y. Hamakawa, Eds., (1992), p.433.

75. T. D. Moustakas, R. J. Molnar and T. Lei, **“Growth of Tetrahedral Phases of Boron Nitride Thin Films by Reactive Sputtering,”** *Mat. Res. Soc. Symp. Proc.*, **242**, T. D. Moustakas, J. I. Pankove and Y. Hamakawa, eds., (1992), p.599-604.
76. M. Fanciulli and T. D. Moustakas, **“EPR Investigation of Defects in Boron Nitride Thin Films,”** *Mat. Res. Soc. Proc.*, **242**, T. D. Moustakas, J. I. Pankove and Y. Hamakawa, eds. (1992), pp.605-611.
77. Y. Bar-Yam, T. Lei, T. D. Moustakas, D. C. Allan, and M. P. Teter, **“Quasi-equilibrium Nucleation and Growth of Diamond and Cubic Boron-Nitride,”** *Mat. Res. Soc. Symp. Vol. 242*, T. D. Moustakas, J. I. Pankove and Y. Hamakawa, eds., (1992). p.335-347.
78. S. Jin, R. Molnar, D. Jong, and T. D. Moustakas, **“Characterization of Electron Cyclotron Resonance Plasmas for Diamond Deposition,”** in *Diamond Optics V Proc. of SPIE*, Vol. 1759, 41 (1992).
79. J. S. Foresi and T. D. Moustakas, **“Piezoresistance and Quantum Confinement in Microcrystalline Silicon,”** In *Light Emission from Silicon*; *Mat. Res. Soc. Symp. Vol.*, **256**, 77-82 (1992) (1992).
80. S. Jin, M. Fanciulli, D. Jong, Y. He and T. D. Moustakas, **“Properties of Optically Smooth Diamond Thin Films Produced by ECR-PACVD,”** in *Diamond Optics V Proc. of SPIE*, Vol. 1759, 116-122 (1992).
81. T. D. Moustakas, T. Lei and R. J. Molnar, **“Growth of GaN by ECR-assisted MBE,”** *Physica B*, **185**, 36-49(1993).
82. J. S. Foresi and T. D. Moustakas, **“Metal Contacts to Gallium Nitride,”** *Appl. Phys. Lett.*, **62**, 2859 (1993).
83. M. Fanciulli and T. D. Moustakas, **“Conduction-electron Spin Resonance in Zinc-blende GaN Thin Films,”** *Phys. Rev. B*, **48**, 15144 (1993).
84. M. Fanciulli and T. D. Moustakas, **“Defects in Diamond Thin Films,”** *Phys. Rev. B*, **48**, 14982 (1993).
85. M. Fanciulli and T. D. Moustakas, **“Study of Defects in Wide Band-gap Semiconductors by Electron Paramagnetic Resonance,”** *Physica B*, **185**, 228-233 (1993).
86. T. Lei, K. F. Ludwig and T. D. Moustakas, **“Heteroepitaxy, Polymorphism and Faulting in GaN Thin Films on Silicon and Sapphire Substrates,”** *J. Appl. Phys.*, **74**, 4430 (1993).
87. R. J. Molnar, T. Lei and T. D. Moustakas, **“Electron Transport Mechanism in Gallium Nitride,”** *Appl. Phys. Lett.*, **62**, 72 (1993).
88. C. R. Eddy, T. D. Moustakas and J. Scanlon, **“Growth of Gallium Nitride Thin Films by Electron Cyclotron Resonance Microwave Plasma-assisted Molecular Beam Epitaxy,”** *J. Appl. Phys.*, **73**, 448-455 (1993).
89. S. Jin and T. D. Moustakas, **“Growth of Diamond Thin Films by Plasma-assisted CVD at Low Pressures and Temperatures,”** *Diamond and Related Materials*, **2**, 1355 (1993).
90. S. Jin and T. D. Moustakas, **“Electrical Conductivity Studies of Diamond Films Prepared by Electron Cyclotron Resonance Microwave Plasma,”** *Appl. Phys. Lett.*, **63**, 2354 (1993).
91. S. Jin and T. D. Moustakas, **“Morphology of Diamond Films Produced by ECR-PACVD,”** In *Evolution of Surface and Thin Film Microstructure*, *Mat. Res. Soc. Symp. Proc. Vol. 280*, 701-704 (1993).
92. R. J. Molnar, T. Lei and T. D. Moustakas, **“High Mobility GaN Films Produced by ECR-assisted MBE,”** *Semiconductor Heterostructures for Photonic and Electronic Applications*, *Mat. Res. Soc. Symp. Proc*, **281**, 765 (1993).

1993

93. T. D. Moustakas and R. J. Molnar, (INVITED) “**Growth and Doping of GaN Films by ECR-assisted MBE,**” *Mater. Res. Soc. Symp. Proc. Vol. 281*, 753 (1993).
94. W. Paul, A. J. Lewis, G.A.N. Connell and T. D. Moustakas, “**Doping Schottky Barrier and p-n Junction Formation in Amorphous Ge and Si by RF Sputtering,**” *Solid State Commun.*, **88**, 1019 (1993). *A Celebratory Issue to Commemorate 30 Years of Solid State Communications*, (previously published in **20**, 969, (1976)).

1994

95. T. D. Moustakas, “**CVD Diamond Synthesis Methods and Effects of Process Parameters**” *Synthetic Diamond: Emerging CVD Science and Technology*, K. E. Spear and J.P. Dismukes, eds., (John Wiley and Sons, N.Y., 1994.)
96. S. Jin and T. D. Moustakas, “**Effect of Nitrogen on the Growth of Diamond Films,**” *Appl. Phys. Lett.*, **65**, 403 (1994).
97. M. Fanciulli and T. D. Moustakas, “**Native Paramagnetic Defects in Diamond Films,**” *Materials Science Forum*, **143-147**, 35 (1994).
98. R. Singh, R. J. Molnar, M.S. Unlu and T. D. Moustakas, “**Intensity Dependence of Photoluminescence in Gallium Nitride Thin Films,**” *Appl. Phys. Lett.*, **64**, 336 (1994).
99. S. Jin, M. Fanciulli and T. D. Moustakas, “**Electronic Characterization of Diamond Films Prepared by Electron Cyclotron Resonance Microwave Plasma,**” *Diamond and Related Materials*, **3**, 878 (1994).
100. S. N. Basu, T. Lei and T. D. Moustakas, “**Microstructures of GaN Films Deposited on (001) and (111) Si Using ECR-MBE,**” *J. Mater. Res.*, **9**, 2370 (1994).
101. M. S. Brandt, N. M. Johnson, R.J. Molnar, R. Singh and T. D. Moustakas, “**Hydrogenation of p-type gallium nitride,**” *Appl. Phys. Lett.*, **64**, 2264 (1994).
102. M.S. Brandt, J. W. Ager III, W. Gotz, N.M. Johnson, J.S. Harris Jr., R.J. Molnar and T. D. Moustakas, “**Local Vibrational Modes in Mg-doped Gallium Nitride,**” *Phys. Rev. B Rapid Commun.*, **49**, 14758 (1994).
103. H. Teisseyre, P. Perlin, T. Suski, I. Grzegory, S. Porowski, J. Jun, A. Pietraszko, and T. D. Moustakas, “**Temperature Dependence of the Energy Gap in GaN Bulk Single Crystals and Epitaxial Layer,**” *J. Appl. Phys.*, **76**, 2429 (1994).
104. R. J. Molnar and T. D. Moustakas, “**Growth of Gallium Nitride by Electron Cyclotron Resonance Plasma-assisted Molecular Beam Epitaxy; The Role of Charged Species,**” *J. Appl. Phys.*, **76**, 4587 (1994).
105. M. Leszczynski, T. Suski, H. Teisseyre, P. Perlin, I. Grzegory, J. Jun, S. Porowski and T. D. Moustakas, “**Thermal Expansion of Gallium Nitride,**” *J. Appl. Phys.*, **76**, 4909 (1994)
106. S. Logothetidis, J. Petalas, M. Cardona and T. D. Moustakas, “**Optical Properties and Temperature Dependence of Interband Transitions of Cubic and Hexagonal GaN,**” *Phys. Rev. B*, **50**, 18017 (1994).
107. M.J. Manfra, S.J. Berkowitz, R.J. Molnar, A.M. Clark, T. D. Moustakas and W. J. Skocpol, “**Reactive Ion Etching of GaN Thin Films,**” *Mat. Res. Soc. Symp. Proc.* **324**, 477-480 (1994).
108. M.S. Brandt, N.M. Johnson, R. J. Molnar, R. Singh and T. D. Moustakas, “**Hydrogenation of Gallium Nitride,**” *Physics and Applications of Defects in Advanced Semiconductors*, *Mat. Res. Soc. Symp.*, **325**, 341 (1994).
109. M. Fanciulli, T. D. Moustakas, M. Corti and A. Rigamonti, “**EPR and ¹¹B NMR Studies of Boron Nitride,**” *Proc. XXVII Congress*

Ampere on Magnetic Resonance, K. M. Salikov, ed., (Kazan, Russia, August, 1994,) **1**, 430.

110. J. Pankove, S.S. Chang, H. C. Lee, R.J. Molnar, T. D. Moustakas and B. Van Zeghbroeck, "**High-temperature GaN/SiC Heterojunction Bipolar Transistor with High Gain**," *IEDM-94*, 389, (1994).

1995

111. R. J. Molnar, R. Singh and T. D. Moustakas, "**Blue-violet Light Emitting Gallium Nitride p-n Junctions Grown by Electron Cyclotron Resonance-assisted Molecular Beam Epitaxy**," *Appl. Phys. Lett.*, **66**, 268 (1995).
112. R.J. Molnar, R. Singh and T. D. Moustakas, "**Operation of a Compact Electron Cyclotron Resonance Source for the Growth of Gallium Nitride by Molecular Beam Epitaxy (ECR-MBE)**", *J. of Electronic Materials*, **24**, 275 (1995).
113. S. Logothetidis, J. Petalas, M. Cardona and T. D. Moustakas, "**The Optical Properties and Electronic Transitions of Cubic and Hexagonal GaN Films between 1.5 and 10 eV**," *Materials Science and Engineering*, **B29**, 65 (1995).
114. P. Perlin, T. Suski, H. Teisseyre, M. Leszczynski, L. Grzegory, J. Jun, S. Porowski, P. Boguslawski, J. Bernholc, J.C. Chervin, A. Polian and T. D. Moustakas, "**Toward the Identification of the Dominant Donor in GaN**," *Phys. Rev. Lett.*, **75**, 296 (1995).
115. T. Suski, P. Perlin, H. Teisseyre, M. Leszczynski, I. Grzegory, J. Jun, M. Bockowski, S. Porowski and T. D. Moustakas, "**Mechanism of Yellow Luminescence in GaN**," *Appl. Phys. Lett.*, **67**, 2188 (1995).
116. M. Fanciulli, M. Lindroos, G. Weyer and T. D. Moustakas "**¹¹⁰Sn Mossbauer Spectroscopy Study of Ion Implanted GaN**," *Mater. Sci. Forum* **196-201**, 61 (1995).

117. H. Teisseyre, P. Perlin, M. Leszczynski, T. Suski, L. Dmowski, I Grzegory, S. Porowski, J. Jun and T.D. Moustakas, "**Epitaxial Layers versus bulk single-crystals of GaN- Temperature studies of Lattice-parameters and Energy Gap**" *Acta Physica Polonica* **87** (2), 403-406 (1995).
118. M. Misra, T. D. Moustakas, R.P. Vaudo, R. Singh and K.S. Shah, "**Photoconducting Ultraviolet Detectors Based on GaN Films Grown by Electron Cyclotron Resonance Molecular Beam Epitaxy**," In *X-Ray and Ultraviolet Sensors and Applications: Proc. of SPIE*, Vol. **2519**, 78-86 (1995).
119. L. D. Zhu, P.E. Norris, J. Zhao, R. Singh, R. Molnar, O. Razumovsky and T. D. Moustakas, "**Growth and Characterization of p/n type GaN grown at reduced substrate temperatures by plasma-enhanced MOCVD**" *Institute of Physics Conference Series* **141**, 113 (1995).

1996

120. C. B. Stagarescu, L. C. Duda, K. E. Smith, J. H. Guo, J. Nordgren, R. Singh and T. D. Moustakas, "**Electronic Structure of GaN Measured Using Soft X-ray Emission and Absorption**," *Phys. Rev. B*, **54**, 17,335(1996)
121. O. Ambacher, W. Rieger, P. Ansmann, H. Angerer, T. D. Moustakas and M. Stutzmann, "**Sub-band-gap Absorption of Gallium Nitride Determined by Photothermal Deflection Spectroscopy**," *Solid State Comm.*, **97**, 365 (1996).
122. R.P. Vaudo, I.D. Goepfert, T. D. Moustakas, D.M. Beyea, T.J. Frey and K. Meehan, "**Characteristics of Light-emitting Diodes Based on GaN p-n Junctions Grown by Plasma-assisted MBE**," *J. Appl. Phys.*, **79**, 2779 (1996).
123. W. Halverson, R. Patel, M. Horenstein, T. D. Moustakas, K. C. Tsai and G. McGurrer, "**Vacuum Flashover on Diamond-like Carbon-coated Insulators**," *IEEE*

- Transactions on Dielectrics and Electrical Insulation*, **3**, 108 (1996).
124. C. Wetzel, S. Fischer, J. Kruger, E. E. Haller, R.J. Molnar, T. D. Moustakas, E.N. Mokhov and P.G. Baranov “**Strongly Localized Excitons in Gallium Nitride**,” *Appl. Phys. Lett.* **68**, 2556 (1996).
125. R. Singh, D. Doppalapudi and T. D. Moustakas, “**Growth and Properties of $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{Al}_y\text{Ga}_{1-y}\text{N}$ Multi-quantum wells developed by Molecular Beam Epitaxy**,” *Appl. Phys. Lett.*, **69**, 2388 (1996)
126. M. Katsikini, E. C. Paloura and T. D. Moustakas, “**Application of Near-edge X-ray Absorption Fine Structure for the Identification of Hexagonal and Cubic Polytypes in Epitaxial GaN**,” *Appl. Phys. Lett.*, **69**, 4206 (1996).
127. M. Fanciulli, S. Jin and T. D. Moustakas, “**Nitrogen in Diamond Thin Films**,” *Physica B*, **229**, 27 (1996).
128. D. Korakakis, H.M. Ng, M. Misra, W. Grieshaber and T. D. Moustakas, “**Growth and Doping of AlGaN Alloys by ECR-assisted MBE**,” *MRS Internet Journal of Nitride Semiconductor Research*, **1**, Art. No.10 (1996).
129. T. D. Moustakas,(INVITED) “**Epitaxial Growth of GaN Films Produced by ECR-assisted MBE**,”*Mat. Res. Soc. Symp. Vol. 395*, 111 (1996).
130. E. Bretschneider, A. Davydov, L. Wang, T.J. Anderson, H.P. Maruska, P.E. Norris, I. Goepfert and T. D. Moustakas, “**ZnS/Si/ZnS Quantum Well Structures for Visible Light Emission**,” *Mat. Res. Soc. Symp. Vol. 405*, 295 (1996).
131. D. Korakakis, A. Sampath, H.M. Ng, G. Morales, I.D. Goepfert and T. D. Moustakas, “**Growth and Doping of GaN Directly on 6H-SiC by MBE**,” *Mat. Res. Soc. Symp. Vol. 395*, 151, (1996).
132. T. D. Moustakas, R. P. Vaudo, R. Singh, D. Korakakis, M. Misra, A. Sampath and I.D. Goepfert, (INVITED) “**Growth of III-V Nitrides by ECR-assisted MBE and Fabrication of Opto-electronic Devices**,” *Inst. Phys. Conf. Ser. No 142*. (Paper presented at Silicon Carbide and Related Materials, 1995 Conf., Kyoto, Japan) 833.
133. R. Singh and T. D. Moustakas, “**Growth of InGaN Films by MBE at the Growth Temperature of GaN**,” *Mat. Res. Soc. Symp. Vol. 395*, 163 (1996).
134. R. Singh and T. D. Moustakas, (INVITED) “**Growth of InGaN Films Produced by Electron Cyclotron Resonance-assisted Molecular Beam Epitaxy**,” in *III-V Nitride Materials and Processes*, T. D. Moustakas, J.P. Dismukes and S.J. Pearton, eds., *ECS Proc.*, **96-11**, 186 (1996).
135. T. D. Moustakas and R. J. Molnar, “**Growth of Polycrystalline Scandium Nitride by ECR-MBE**,” in *III-V Nitride Materials and Processes*, T. D. Moustakas, J.P. Dismukes and S.J. Pearton, eds, *ECS Proc.*, **96-11**, 197 (1996).
136. J. P. Dismukes and T. D. Moustakas, “**The Potential of ScN-GaN Heterojunctions and Alloys for Wide-band-gap Semiconductor Devices and Displays**,” in *III-V Nitride Materials and Processes*, T. D. Moustakas, J.P. Dismukes and S.J. Pearton, eds., *ECS Proc.*, **96-11**, 110 (1996).
137. M. Katsikini, E. C. Paloura, J. Kalomiros, P. Bressler and T. D. Moustakas, “**Angular Dependence of the NEXAFS Structure in Hexagonal and Cubic GaN**,” *Proceeding of the 23rd International Conference on the Physics of Semiconductors* (Berlin, Germany, July 21-26, 1996) ed. M. Scheffler and R. Zimmerman (World Scientific, Singapore 1996) pp.573-576.
138. M.S. Unlu, R. F. Ruane, B. B. Goldberg, T. D. Moustakas, B. E. A. Saleh, and M.C. Teich, “**PRIDE: Photonics Research in Interdisciplinary Education**”, 1996 ASEE

Annual Conference Proceedings, **Session 1626**
(1996)

1997

139. R. Singh, D. Doppalapudi, T. D. Moustakas and L.T. Romano, "**Phase Separation in InGaN Thick Films and Formation of InGaN/GaN Double Heterostructures in the Entire Alloy Composition,**" *Appl. Phys. Lett.*, **70**, 1089 (1997).
140. D. Korakakis K. F. Ludwig and T. D. Moustakas, "**Long Range Order in $Al_xGa_{1-x}N$ Films Grown by ECR-assisted MBE.**" *Appl. Phys. Lett.*, **71**, 72 (1997).
141. L. T. Romano, B. S. Krusor, R. J. Singh and T. D. Moustakas, "**Structure of GaN Films Grown by Molecular Beam Epitaxy on (0001) Sapphire,**" *J. Elect. Mat.* **26**, 285, (1997)
142. W. D. Herzog, R. Singh, B. B. Goldberg, M. S. Unlu and T. D. Moustakas, "**Photoluminescence Microscopy of InGaN Quantum Wells,**" *Appl. Phys. Lett.* **70**, 1333 (1997).
143. M. Katsikini, E.C. Paloura, M. Fieber-Erdman, J. Kalomiros, T. D. Moustakas, H. Amano and I. Akasaki, "**N-K-edge X-ray Absorption Study of Heteroepitaxial GaN Films,**" *Phys. Review B*, **56**, 13380 (1997).
144. Sarnjeet S. Dhesi, Cristian B. Stagarescu, Kevin Smith, D. Doppalapudi, R. Singh and T. D. Moustakas, "**Surface and Bulk Electronic Structure of Thin Film Wurtzite GaN.**" *Phys. Review B*, **56**, 10271 (1997).
145. R. Singh, W.D. Herzog, D. Doppalapudi, M.S. Ünlu, B.B. Goldberg and T. D. Moustakas, "**MBE Growth and Optical Characterization of InGaN/AlGaIn Multi-quantum Wells**" *Mat. Res. Soc. Symp. Vol. 449*, 185 (1997).
146. D. Korakakis, H.M Ng, K. Ludwig and T. D. Moustakas, "**Doping Studies of n- and p-type $Al_xGa_{1-x}N$ grown by ECR assisted MBE**" *Mat. Res. Soc. Symp. Vol. 449*, 233 (1997).
147. M. Katsikini, E. C. Paloura, M. Fieber-Erdmann, T. D. Moustakas, H. Amano and I. Akasaki, "**N-K- Edge EXAFS Study of Epitaxial GaN Films,**" *Mat. Res. Soc. Symp. Vol. 449*, 459-464 (1997).
148. M. Katsikini, E. C. Paloura, T. D. Moustakas, E. Holub-Krappe and J. Antonopoulos "**Determination of the Percentage of the Cubic and Hexagonal Phases in GaN with NEXAFS,**" *Mat. Res. Soc. Symp. Vol. 449*, 411 (1997).
149. M. Misra, D. Korakakis, R. Singh, A. Sampath and T. D. Moustakas, "**Photoconducting Properties of Ultraviolet Detectors based on GaN and $Al_xGa_{1-x}N$ Grown by ECR-assisted MBE,**" *Mat. Res. Soc. Symp. Vol., 449*, 597 (1997).
150. L.V. Jorgensen, A.C. Kruseman, H. Schut, A. Van Veen, M. Fanciulli and T. D. Moustakas, "**Investigation of Vacancies in GaN by Positron Annihilation,**" *Mat. Res. Soc. Symp. Vol. 449*, 853 (1997)
151. K. E. Smith, S. S. Dhesi, L. C. Duda, C. B. Stagerescu, J. H. Guo, J. Nordgren, R. Singh and T. D. Moustakas, "**Bulk and Surface Electronic Structure of GaN Measured Using Angle-resolved Photoemission, Soft X-ray Emission and Soft X-ray Absorption,**" *Mat. Res.Soc. Symp.Vol. 449*, 787 (1997).
152. H.M. Ng, D. Doppalapudi, D. Korakakis, R. Singh and T.D. Moustakas. (INVITED) "**MBE Growth and Doping of III-V Nitrides.**" *Proceedings of the Second International Conference on Nitride Semiconductors*. pp. 10-12 (Tokushima, Oct. 27-31, 1997)
153. T.D. Moustakas, D. Korakakis, D. Doppalapudi and R. Singh. (INVITED) "**MBE Growth of III-V Nitride Alloys and MQWs for Visible and UV emitters.**" *Proceedings of the Workshop on III-V Nitrides-based Short-wavelength*

Optoelectronic Devices and Materials. pp. 9-16 (Tokushima, Nov. 1, 1997)

1998

154. D. Doppalapudi, S.N. Basu, K.F. Ludwig and T.D. Moustakas "Phase Separation and Ordering in InGaN alloys grown by Molecular Beam Epitaxy." *J. Appl. Phys.* **84**, 1389(1998)
155. H.M. Ng, D. Doppalapudi, T.D. Moustakas, N.G. Weimann and L.F. Eastman "The role of dislocation scattering in n-type GaN Films." *Appl. Phys. Lett* **73**, 821(1998).
156. N.G. Weimann, L.F. Eastman, D. Doppalapudi, H.M. Ng, and T.D. Moustakas "Scattering of Electrons at Threading Dislocations in GaN." *J. Appl. Phys.* **83**, 3656 (1998)
157. J.T. Torvik, J.I. Pankove, E. Iliopoulos and T.D. Moustakas "Optical Properties of GaN Grown Over SiO₂ on SiC Substrates by MBE." *Appl. Phys. Lett.*, **72**, 244 (1998).
158. M.Katsikini, E. C. Paloura and T. D. Moustakas "Experimental Determination of the N-p partial Density of States in the Conduction Band of GaN: Determination of the Polytype Fractions in Mixed Phase Samples." *J. of App. Phys.* **83**, 1437 (1998).
159. D. Korakakis, K.F. Ludwig and T.D. Moustakas "X-ray Characterization of GaN/AlGaN Multiple Quantum Wells for Ultraviolet Laser Diodes." *Appl. Phys Lett.* **72**, 1004 (1998).
160. J.T. Torvik, M. Leksono, J.I. Pankove. B. Van Zeghbroeck, H.M. Ng and T.D. Moustakas "Electrical Characterization of n-GaN/p-SiC Heterostructures Grown by MOCVD and MBE." *Appl. Phys Lett.* **72**, 1371(1998)
161. H.M. Ng, D. Doppalapudi, D. Korakakis, R. Singh and T.D. Moustakas "MBE Growth and Doping of III-V Nitrides." *J. of Crystal Growth*, **189-190**, 349(1998).
162. E. Iliopoulos, D. Doppalapudi, H.M. Ng and T.D. Moustakas. "Broadening of near-band-gap Photoluminescence in n-GaN Films." *Appl. Phys. Lett.* **73**, 375(1998).
163. L.C. Duda, C.B. Stagarescu, J. Downes K.E. Smith, D. Korakakis, T.D. Moustakas, J. Guo, J. Nordgreen. "Density of States hybridization and band-gap evolution in AlGa_xN alloys" *Phys. Rev. B* **58**, 1928 (1998)
164. K.E. Smith, L.C. Duda, C.B. Stagarescu, J. Downes, D. Korakakis, R. Siugh T.D. Moustakas, J. Guo and J. Nordgren, "Soft x-ray emission studies of the bulk electronic structure of AlN, GaN and Al_{0.5}Ga_{0.5}N" *J. Vac. Sci. Technol. B* **16**, 2250 (1998)
165. R. Singh, R. Barrett, J. Gomes, F. Dabkowski and T.D. Moustakas "Selective Area Growth of GaN Directly on (0001) Sapphire by the HVPE Technique". *MRS Internet J. of Nitride Semicond. Res.* **Vol.3**, Art. No 13 (1998)
166. J. I. Pankove and T. D. Moustakas "A historical survey of Research on Gallium Nitride" in Gallium Nitride I, Semiconductors and Semimetals Vol.50, p 1 (1998)
167. W.D. Herzog, R. Singh, B.B. Goldberg, T.D. Moustakas, F.P. Dabkowski and M.S. Unlu, "Stimulated Emission from as-grown GaN hexagons by selective area growth hydride vapor phase epitaxy" *Electron Lett.* , **34**, 1970 (1998)
168. T.D. Moustakas, R. Singh, D. Korakakis, D. Doppalapudi, H.M. Ng, A. Sampath, E. Iliopoulos and M. Misra. (INVITED) "Atomic Ordering and Phase Separation in AlGa_xN Alloys." *Mat. Res. Soc. Symp. Proc.* **482**, 193 (1998)
169. E. Iliopoulos, D. Doppalapudi, H.M. Ng and T.D. Moustakas "Near Band Gap Photoluminescence Broadening in n-GaN Films." *Mat. Res. Soc. Symp. Proc.* **482**, 655 (1998)

170. H.M. Ng, D. Doppalapudi, R. Singh and T.D. Moustakas "**Electron Mobility in n-GaN Films.**" *Mat. Res. Soc. Symp. Proc.* **482**, 507 (1998)
171. A. Sampath, H.M. Ng, D. Korakakis and T.D. Moustakas "**Metal Contacts to n-Al_xGa_{1-x}N.**" *Mat. Res. Soc. Symp. Proc.* **482**, 1095 (1998).
172. D. Doppalapudi, F. Iliopoulos, S.N. Basu and T.D. Moustakas "**Effect of Nitridation and Buffer in GaN Films Grown on A-plane (11-20) Sapphire.**". *Mat. Res. Soc. Symp. Proc.* **482**, 51(1998)
173. M. Katsikini, E. Paloura, M. Fieber-Erdmann, E. Holub-Krappe and T.D. Moustakas, "**The Effect of Si and Mg Doping in the Microstructure of Epitaxially Grown GaN**", *Mat. Res. Soc. Symp. Vol.* **482**, 381(1998)
174. Kevin F. Smith, Sarnjeet S. Dhesi, Cristian B. Stagarescu, James Downes, D. Doppalapudi, T.D. Moustakas "**Photoemission Study of the Electronic Structure of Wurtzite GaN (0001) Surfaces**". *Mat. Res. Soc. Symp. Vol.* **482**, 787 (1998)
175. D. Doppalapudi, S.N. Basu and T.D. Moustakas "**Phase Separation and Ordering in InGaN Alloys**". *Mat. Res. Soc. Symp. Vol.* **512**, p.431 (1998).
176. T.D. Moustakas and J. P. Dismukes "**Growth of bulk GaN by reaction of Ga/Sn with Activated Nitrogen**" in *III-V Nitride Material and Processes*. Edited by Abernathy et al. ECS Proc. **97-34**, p.284. (1998)
- 1999**
177. D. Doppalapudi, S.N. Basu and T.D. Moustakas, "**Domain Structure in Chemically Ordered In_xGa_{1-x}N Alloys Grown by Molecular Beam Epitaxy**" *J. Appl. Phys.*, **85**, 883 (1999)
178. H.M. Ng, D. Doppalapudi, E. Iliopoulos and T.D. Moustakas. "**Distributed Bragg Reflectors based on AlN/GaN Multilayers.**" *Appl. Phys. Lett.* **74**, 1036 (1999).
179. T. Valla, P.D. Johnson, S.S. Dhesi, K.E. Smith, D. Doppalapudi, T.D. Moustakas, E.L. Shirley "**Unoccupied band structure of Wurtzite GaN (0001)**", *Physical Review* **B59**, 5003, (1999).
180. D. Doppalapudi, E. Iliopoulos, S.N. Basu, and T.D. Moustakas "**Epitaxial Growth of Gallium Nitride Thin Films on A-Plane Sapphire by Molecular Beam Epitaxy.**" *J. Appl. Phys.* **85**, 3582 (1999).
181. M. Misra, D. Korakakis, H.M. Ng and T.D. Moustakas, "**Photoconductive detectors based on partially ordered Al_xGa_{1-x}N alloys grown by molecular beam epitaxy.**" *Appl. Phys. Lett.* **74**, 2203 (1999)
182. M. Misra, D. Doppalapudi, A.V. Sampath, T.D. Moustakas, P.H. McDonald "**Generation-Recombination noise in GaN Photoconducting detectors**", *MRS Internet J. of Nitride Semicond. Res.* **4s1**, Art. No. G7.8 (1999).
183. G.E. Bunea, S.T. Dunham, and T.D. Moustakas "**Modeling of a GaN based Static Induction Transistor**", *MRS Internet J. of Nitride Semicond. Res.* **4s1**, Art. No.G6.41 (1999).
184. M. Katsikini, M. Fieber-Erdmann, B. Holub-Krappe, D. Korakakis, T. D. Moustakas, E. C. Paloura "**Nitrogen K-edge NEXAFS measurements on group-III binary and ternary nitrides.**", *J. of Synchrotron Radiation*, **6**, 561-563 (1999)
185. M. Katsikini, T. D. Moustakas, B. C. Paloura "**Nitrogen K-edge EXAFS measurements on Mg and Si doped GaN.**" *J. of Synchrotron Radiation*, **6**, 555-557 (1999)
186. M. Katsikini, H. Rossner, M. Fieber-Erdmann, B. Holub-Krappe, T. D. Moustakas, B. C. Paloura "**Gallium K-edge EXAFS measurements on cubic hexagonal GaN**", *J. of Synchrotron Radiation*, **6**, 561(1999)

187. M.Katsikini, B. C. Paloura, M. Fieber-Brdmann, B. Holub-Krappe, D. Korakakis, T. D. Moustakas "Nitrogen K-edge NEXAFS measurements on group-III binary and ternary nitrides.", *J. of Electron Spectroscopy and Related Phenomena*, **101-103**, 695-699 (1999)
188. M. Holtz, M. Seon, T. Prokofyeva, H. Temkin, R. Singh, F. P. Dabkowski, T. D. Moustakas "Micro-Raman Imaging of GaN Hexagonal Island structures", *Appl. Phys. Lett.* **75**, 1757 (1999).
189. A.M. Mintrairov, A.S. Vlasov, J. L. Merz, D. Korakakis, T.D. Moustakas, A.O. Osinsky, R. Gaska and M.B. Smirnov "Disorder induced IR Anomaly in Hexagonal AlGaIn short-period superlattices and Alloys.", In *Wide-Bandgap Semiconductors for High-Power, High-Frequency and High-Temperature Applications-1999*; Mat. Res. Soc. Symp. Proc. Vol. **572**, pp. 427-432 (1999)
190. M. Misra, D. Korakakis, H.M. Ng and T.D. Moustakas. "Ultraviolet Photoconducting Detectors based on Ordered AlGaIn films grown by Molecular Beam Epitaxy." in *III-V Nitride Materials and Processes*, T.D. Moustakas, S. Mohny and S. Pearton Eds ECS Proc. **98-18**, 30 (1999).
191. D. Doppalapudi, K. J. Nam, A. Sampath, R. Singh, H. M. Ng, S. N. Basu and T.D. Moustakas "Threading Defect reduction in laterally overgrown GaN films by Hydride Vapor Phase Epitaxy." in *III-V Nitride Materials and Processes*, T.D. Moustakas, S. Mohny and S. Pearton Eds, ECS Proc. **98-18**, 87 (1999).
192. H. M. Ng, D.Doppalapudi, E. Illiopoulos and T.D. Moustakas "Distributed Bragg Reflectors based on AlN/GaN multilayers.", in *III-V Nitride Materials and Processes*, T.D. Moustakas, S. Mohny and S. Pearton Eds, ECS Proc. **98-18**, 129 (1999).
193. K.E. Smith, L. C. Duda, C. B. Stagarescu, S.S. Dhesi, J. Downes, R. Singh, D.Doppalapudi, T.D. Moustakas, J. H. Guo, J. Nordgren, T. Valla and P.D. Johnson "Spectroscopic Studies of the Electronic Structure of the Wurtzite GaN and AlGaIn." in *III-V Nitride Materials and Processes*, T.D. Moustakas, S. Mohny and S. Pearton Eds, ECS Proc. **98-18**, 50 (1999)
- 2000**
194. M. Misra, A. V. Sampath and T. D. Moustakas "Investigation of vertical transport in n-GaN films grown by Molecular Beam Epitaxy using Schottky barrier diodes". *Appl. Phys. Lett.*, **76**,1045(2000)
195. H. M. Ng, T. D. Moustakas and S. N. G. Chu, "High reflectivity and broad bandwidth AlN/GaN distributed Bragg reflectors grown by Molecular Beam Epitaxy", *Appl. Phys. Lett.***76**, 2818 (2000).
196. H. M. Ng and T. D. Moustakas "Structural and optical characterization of InGaIn/GaN multiple quantum wells grown by molecular beam epitaxy", *J of Vacuum Sci. & Tech.-B18*, 1457 (2000).
197. P. Ryan, Y.C. Chao, J. Downes, C. McGuinness, K.E. Smith, A.V. Sampath, T.D. Moustakas "Surface Electronic Structure of p-type GaN (0001)", *Surface Science* **467**,L827, (2000)
198. A. V. Sampath, M. Misra, K. Seth, Y. Fedyunin, H. M Ng, E. Illiopolus, Z. Fiet and T. D. Moustakas "A Comparative Study of GaN diodes grown by MBE on sapphire and sapphire/HVPE-GaN substrate", *MRS Internet Journal of Nitride Semiconductor Research*, **5S1**, Art. No.W11.1(2000).
199. H. M. Ng and T. D. Moustakas "High Reflectance III-Nitride Bragg reflectors grown by molecular beam epitaxy", *MRS Internet Journal of Nitride Semiconductor Research*, **5S1**, Art. No. W1.8 (2000).
200. M. Misra, A. V. Sampath and T. D. Moustakas "Vertical Transport Properties of GaN Schottky diodes Grown by molecular beam

epitaxy", *MRS Internet Journal of Nitride Semiconductor Research*, Res 5S1, Art. No. W11.2 (2000).

201. H. M. Ng, T. D. Moustakas (INVITED) "**Group III Nitride VCSELS structures grown by Molecular Beam Epitaxy**" in *Physics and Simulation of Optoelectronic Devices – Proceedings of SPIE 3944*, 22 (2000).
202. A.V.Sampath, E.Iliopoulos, K.Seth, M.Misra, H.M.Ng, P.Lamarre, Z.Feit, T.D. Moustakas "**GaN photodiodes by MBE on HVPE and ELO-HVPE/Sapphire substrates**", in *Photodetectors: Materials and Devices V– Proceedings of SPIE 3948*, 311(2000).
203. M.Misra, A.V.Sampath, E.Iliopoulos, T.D. Moustakas "**GaN Schottky diode ultraviolet detectors grown by MBE**" in *Photodetectors: Materials and Devices V- Proceedings of SPIE 3948*, 342(2000).
204. M.Misra, T.D. Moustakas, "**Photoconductivity Recombination Kinetics in GaN films**", *Mat. Res. Soc. Proc. Vol. 662*, T5.4.1 (2000)

2001

205. E. Iliopoulos, K.F. Ludwig, T.D. Moustakas and S.N.G. Chu, "**Chemical Ordering in AlGa_N Alloys Grown by Molecular Beam Epitaxy**", *Appl. Phys. Lett.*, **78**,463 (2001)
206. T.D. Moustakas, E. Iliopoulos, A.V. Sampath, H.M. Ng, D. Doppalapudi, M. Misra, D. Korakakis, R. Singh, "**Growth and Device Applications of III-Nitrides by MBE**", *J. of Crystal Growth*, **227-228**, 13 (2001)
207. M. Katsikini, E. C. Paloura, J. Antonopoulos, P. Bressler and T.D. Moustakas "**Study of group –III binary and ternary nitrides using near X-ray absorption measurements**" *J. of Crystal Growth*, **230**,405-409 (2001).
208. E.Iliopoulos, K.F.Ludwig Jr., T.D.Moustakas, Ph. Komninou, Th. Karakostas, G.Nouet,

S.N.G.Chu "**Epitaxial growth and self organized superlattice structures in AlGa_N films grown by plasma assisted molecular beam epitaxy**" *Material Science and Engineering –B* **87**, 227 (2001)

209. Rajwinder Singh, C.R.Eddy Jr., H.M.Ng, T.D.Moustakas "**High density plasma etching damage effects on contacts to n-GaN**" *Mat. Res. Soc. Symp. Vol. 639*, G6.61 (2001)
210. A.Sampath, A.Bhattacharyya, I.Sandeep, H.M.Ng, E.Iliopoulos, T.D.Moustakas, "**MBE Growth of GaN using NH₃ and Plasma sources**" *Mat.Res. Soc. Symp. Vol. 639*, G6.56 (2001)
211. R.Mlcak, D.Doppalapudi, J.Chan, A.Sampath, T.D.Moustakas, H.L.Tuller, "**Micromachined SiC-AlN Bulk Resonator Array Sensor Platform for Ultra Sensitive Explosive Detection**", 3rd International Aviation Technology Symposium, (Nov 27-30, 2001).

2002

212. T. D. Moustakas, "**Growth of Wide-Bandgap Nitride Semiconductors by MBE**" in Critical Review Series "**Gallium-Nitride-based Technologies**", Ed. by Marek Osinski (SPIE Optical Engineering Press, 2002) pp. 1-46
213. A. Bhattacharyya, I. Friel, Sandeep Iyer, E. Iliopoulos, A.V. Sampath, J. Cabalu, T.D. Moustakas, "**High Reflectivity and Crack-free AlGa_N/AlN UV Distributed Bragg Reflectors**" *J. Vac. Sci. and Technol. B* **20**, 1229 (2002)
214. E. Iliopoulos, T.D. Moustakas "**Growth Kinetics of AlGa_N Films by Plasma Assisted Molecular Beam Epitaxy**" *Appl. Phys. Lett.* **81**, 295 (2002).
215. P. Ryan, C. McGuinness, J. E. Downes, K. E. Smith, D. Doppalapudi, and T.D.Moustakas, "**Band-gap evolution, hybridization, and thermal stability of In_xGa_{1-x}N alloys measured by soft X-ray**

- emission and absorption**", Phys. Rev. B **65**, 205201 (2002).
216. Ph. Komninou, Th. Kehagias, J. Kioseoglou, G. P. Dimitrakopoulos, A. Sampath, T.D. Moustakas, G. Nouet and Th. Karakostas, **"Interfacial and Defect Structures in Multilayered GaN/ AlN Films"** J. of Phys: Condens. Matter **14**, 13277 (2002).
217. A.V. Sampath, E. Iliopoulos, A. Bhattacharyya, I. Friel, Sandeep Iyer, J. Cabalu, T.D. Moustakas, **"Growth of III-Nitrides by MBE"(INVITED)** , in *Widebandgap Semiconductors for Photonic and Electronic Devices and Sensors* , Electrochem. Soc. Proc. **2002-3**, 46 (2002).
218. Enrico Bellotti and T.D. Moustakas, **"Design and Fabrication of GaN-based Static Induction Transistor"(INVITED)**, in Symposium Proceedings on Static Induction Devices, SSID02, Vol.**15**, (Tokyo, Japan, 2002).
- 2003**
219. E.Iliopoulos, K.F. Ludwig, Jr, and T.D. Moustakas, **"Complex Ordering in Ternary Wurtzite Nitride Alloys"** Journal of Physics and Chemistry of Solids **64**, 1525 (2003).
220. A.Bhattacharyya, I. Friel, S. Iyer, T.C.Chen, W. Li, J.Cabalu, Y.Fedunin, K.F.Ludwig Jr, T.D. Moustakas, H. P. Maruska, D.W. Hill, J.J.Gallagher, M. M. Chou, B.Chai **"Comparative study of GaN/AlGaN MQWs grown homoepitaxially on (1-100) and (0001) GaN"**, Journal of Crystal Growth, Vol. **251**, 487 (2003)
221. J. E. Downes, K.E.Smith, A. Y. Matsuura, I. Lindau, E. Iliopoulos and T.D. Moustakas, **"Surface Degradation of InGaN Thin Films by sputter-Anneal Processing: A Photoemission Electron Microscopy Study"** Journal of Appl. Phys. **94**, 5820 (2003)
222. G.A.Garrett A.V. Sampath, C. J. Collins, F. Semendy, K.Aliberti, H. Shen M.Wrback, Y. Fedunin and T.D.Moustakas, **"Subpicosecond Luminescence Studies of Carrier Dynamics In Nitride Semiconductors Grown Homoepitaxially by MBE on GaN Templates"** Mater. Res. Soc. Symp. Proc., Vol. 743, pp. L5. 7 (2003)
223. S. Iyer, D. J. Smith A. Bhattacharyya, K.Ludwig Jr. and T. D. Moustakas **"Growth and Characterization of non-polar (11-20) GaN and AlGaN/GaN MQWs on R-plane (10-12) sapphire"** Mater. Res. Soc. Symp. Proc., Vol. 743, pp. L3.20 (2003)
224. Y Shao, T.C. Chen, D. B. Fenner, T. D. Moustakas, and G. Chu, **"Nitrogen Gas-Cluster Ion Beam –A new Nitrogen Source for GaN Growth"** Mater. Res. Soc..Symp. Proc., Vol. 743, pp L3.10 (2003)
225. A. V. Sampath, A. Bhattacharyya, R. Singh, C.R.Eddy, P. Lamarre, W.F. Stacey, R.S. Morris and T.D. Moustakas **"Growth and Fabrication of high Reverse Breakdown Heterojunctions n-GaN: p-6H-SiC Diodes"** Mater. Res. Soc. Symp. Proc., Vol. 743, pp.L6.34 (2003).
226. C. McGuinness, J. E. Downes, P. Ryan, K. Smith, D. Doppalapudi and T.D. Moustakas **"X-ray Spectroscopic Studies of the bulk Electronic Structure of InGaN Alloys"** Mat. Res. Soc. Symp. Proc. Vol. 743, pp.L10.11.1 (2003)
227. HP Maruska, DW Hill, MMC Chou, JJ Gallagher, BH Chai, R Vanfleet, J Simmons, A Bhattacharyya, I Friel, Tai-Chou Chen, W Li, J Cabalu, Y Fedyunin, KF Ludwig, T.D. Moustakas, **"Development of 50 mm diameter non-polar gallium nitride substrates for device applications"**, Conference Proceedings of the 2003 Indium Phosphide and Related Materials: Published by: ieeexplore.ieee.org, pp. 567-570 (2003)

2004

228. I. Friel, C. Thomidis, Y. Fedyunin, T.D. Moustakas **“Investigation of excitons in AlGa_N/Ga_N multiple quantum wells by Lateral photocurrent and photoluminescence spectroscopies** J. of Appl. Phys. **95**, 3495 (2004).
229. I. Friel, C. Thomidis, T. D. Moustakas, **“Well width dependence of the effects of disorder on the optical properties of AlGa_N/Ga_N quantum wells”**, Appl. Phys. Lett. **85**, 3068 (2004)
230. A. Bhattacharyya, W. Li, J. Cabalu, T.D. Moustakas, David J. Smith and R.L. Hervig, **“Efficient P-type Doping of Ga_N films by Plasma- assisted Molecular Beam Epitaxy”** Appl. Phys. Lett. **85**, 4956 (2004)
231. Jasper S. Cabalu, Liberty L. Gunter, Ian Friel, A. Bhattacharyya, Y. Fedyunin, K. Chu, E. Bellotti, C. Eddy and T. D. Moustakas **“Design and Fabrication of Ga_N –based Permeable-base Transistor”** Mat. Res. Soc. Symp. Proc. Vol. 798, 85 (2004).
232. D. Doppalapudi, R. Mlcak, J. Chan, H. Tuller, A. Bhattacharya, and T. Moustakas, **“MBE Grown AlN Films on SiC for Piezoelectric MEMS Sensors”** Mat. Res. Soc. Proc. Vol 798, Y10.61.1 (2004).
233. M. Wraback, H. Shen, A.V. Sampath, C.J. Collins, G.A. Garrett, W.L. Sarney, Y. Fedyunin, J. Cabalu, and T.D. Moustakas, **“Time-Resolved Reflectivity Studies of Electric Field Effects in III-Nitride Semiconductors”**, Mat. Res. Soc. Proc. Vol 798, 607 (2004).
234. Jasper S. Cabalu, Christos Thomidis, Theodore D. Moustakas and Spilios Riyopoulos, **“Enhanced Light Extraction and Spontaneous Emission from Textured Ga_N Templates Formed During Growth by the HVPE Method”**, Proceedings of the Electrochemical Society, Vol. 2004-06, p.351 (2004).
235. D. Doppalapudi, R. Milcak, J. Chan, H. L. Tuller, J. Abell, W. Li and T.D. Moustakas, **“Sensors based on SiC-AlN MEMS”**(**INVITED**), Proceedings of the Electrochemical Society, Vol. 2004-06, p. 287 (2004).

2005

236. I. Friel, C. Thomidis, T. D. Moustakas, **“Ultraviolet Electroabsorption Modulator based on AlGa_N/Ga_N Multiple Quantum Wells”**, J. Appl. Phys. **97**, 123515(2005).
237. I. Friel, K. Driscoll, E. Kulenica, M. Dutta, R. Paiella and T.D. Moustakas **“Investigation of the design parameters of AlN/Ga_N multiple quantum wells grown by molecular beam epitaxy for intersubband absorption”** J. of Crystal Growth, **278**, 387 (2005).
238. T. Xu., C. Thomidis, I. Friel, and T. D. Moustakas, **“Growth and Silicon Doping of AlGa_N Films in the Entire Alloy Composition by Molecular Beam Epitaxy”**, Phys. Stat. Sol. (c) **2(7)**, 2220 (2005).
239. L. Plucinski, T. Learmonth, K. E. Smith, A. Zakharov, I. Grzegory, T. Suski, S. Porowski, B. J. Kowalski, I. Friel and T. D. Moustakas, **“Resonant Photoemission and Electron Localization in Ga_N”**, Solid State Commun. **136**, 91 (2005)
240. A. Bhattacharyya, J. Cabalu, C. Thomidis, C. J. Collins and T. D. Moustakas, **“MBE grown 340 nm UV-LED structures based on Ga_N/AlGa_N MQWs”** 22nd North American Molecular Beam Epitaxy Conference. (Conference book, p.110).
241. Tao Xu, Adrian Williams, Christos Thomidis, and Theodore D. Moustakas, **“Ga_N Quantum Dots grown at High Temperatures by Molecular Beam Epitaxy”** Mat. Res. Soc. Proc. **831**, E2.4 (2005).
242. J. C. Cabalu, C. Thomidis, I. Friel and T.D. Moustakas, (**INVITED**), **“Nitride LEDs**

based on Flat and “wrinkled” Quantum Wells” *Quantum Sensing and Nanophotonic DevicesII*, Edited by Manijeh Razeghi and Gail Brown, Proc. of SPIE, Vol. **5732**, 185(2005)

243. S. Riyopoulos, J. Cabalu and T. D. Moustakas, “**Enhanced light extraction through nano-textured GaN interfaces via supercritical angle scattering**” *Optoelectronic Devices: Physics, Fabrication and Applications*, Edited by Joachim Piprek, Proc. of SPIE, Vol. **6013**, G-1 (2005).

2006

244. J. C. Cabalu, C. Thomidis, I. Friel and T.D. Moustakas and S. Riyopoulos, “**Enhanced internal quantum efficiency and light extraction efficiency from textured GaN/AlGaIn quantum wells grown by molecular beam epitaxy**” *J. Appl. Phys* **99**, 064904 (2006).

*Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology April 3, 2006, Editor David Awschalom*.

245. Tai-Chu P. Chen, C. Thomidis, J. Abell, W. Li and T. D. Moustakas “**Growth of InN Films by RF plasma –assisted MBE and Cluster Beam Epitaxy**” *Journal of Crystal Growth*, **288**, 254 (2006).

246. L. Colakerol, T.D. Veal, H.-K. Jeong, L. Plukinski, A. DeMasi, S. Wang, Y. Zhang, L.F.J. Piper, P.H. Jefferson, A. Fedorov, T.C. Chen, T. D. Moustakas, C.F. McConville, and K.E. Smith, “**Quantized Electron Accumulation States in Indium Nitride**” *Phys. Rev. Lett.* **97**, 237601 (2006).

* Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology (December 18,, 2006, Editor David Awschalom)*

247. L. Plucinski, L. Colakerol, S. Bernardis, Y. Zhang, S. Wang, C.O'Donnell, K. E. Smith, I. Friel and T. D. Moustakas,

“**Photoemission Study of Sulfur and Oxygen Adsorption on GaN (0001)**” *Surf. Sci.*, **600**, 116 (2006)

248. L. Colakerol, P.-A. Glans, L. Plucinski, Y. Zhang, K.E. Smith, A. A. Zakharov, R. Nyholm, J. Cabalu and T. D. Moustakas “**Resonant Photoemission at the Ga 3p photothreshold in In_xGa_{1-x}N**”, *J. Elec. Spectroscopy Rel. Phenom.*, **152**, 25 (2006).

249. J. C. Cabalu, A. Bhattacharyya, C. Thomidis T.D. Moustakas, and C. J. Collins “**High power ultraviolet light emitting diodes based on GaN/AlGaIn quantum wells produced by molecular beam epitaxy**” *J. Appl. Phys.* **100**, 104506 (2006).

250. Y. Wang, A. S. Ozcan, K. F. Ludwig, Jr., A. Bhattacharyya, T. D. Moustakas, L. Zhou and D. Smith, “**Complex and incommensurate ordering in Al_{0.72}Ga_{0.28}N thin films grown by plasma assisted molecular beam epitaxy**” *Appl. Phys. Letters* **88**, 181915 (2006) .

251. L. Zhou, T. Xu, D.J. Smith, and T.D. Moustakas, “**Growth and Characterization of relaxed InN quantum dots grown on GaN buffer layers by Molecular Beam Epitaxy**” *Appl. Phys. Lett.*, 231906, **88** (2006)

* Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology June 19th, 2006, Editor David Awschalom*

252. A. S. Ozcan, Y. Wang, K. F. Ludwig, G. Ozaydin, A. Bhattacharyya, T. D. Moustakas, and D. P. Siddon, “**Real-Time X-ray Studies of Gallium Adsorption and Desorption**” *J. Appl. Phys.* **100**, 084307 (2006).

* Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology (October 30, 2006, Editor David Awschalom)*

253. Y. Wang, A. Özcan, G. Özaydin, K. Ludwig Jr, , A. Bhattacharyya, T. D. Moustakas, H. Zhou, R. Headrick and D. P. Siddons “**Real time synchrotron x-ray studies of low and**

- high temperature nitridation of c-plane sapphire**” Phys. Rev. B. 74, 235304 (2006).
254. A. D. Williams and T. D. Moustakas **“Planarization of GaN by the etch-back method”** Mater. Res. Soc. Symp. Proc. Vol. 892, 363 (2006).
255. J. S. Cabalu, A. D. Williams, Tai-Chou P.Chen, R. France and T. D. Moustakas, **“Visible Light Emitting Diodes Grown by Plasma-assisted MBE on Hydride vapor-phase epitaxy GaN templates and the development of dichromic (Phosphorless) white LEDs.”** Mater. Res. Soc. Symp. Proc. Vol. 892, 245 (2006).
- 2007**
256. Adrian Williams and T. D. Moustakas, **“Formation of large-area freestanding Gallium Nitride substrates by natural stress-induced separation of GaN and sapphire”**. J. Crystal Growth, 300, 37 (2007)
257. Ryan France, Tao Xu, Papo Chen, R. Chandrasekaran and T. D. Moustakas, **“Vanadium-based Ohmic contacts to n-AlGaN in the entire alloy composition”**, Appl. Phys. Lett. 90, 062115 (2007)
258. R. Chandrasekaran, A.S. Ozcan, D. Deniz, K.F. Ludwig, and T. D. Moustakas, **“Growth of non-polar (11-20) and semi-polar (11-26) AlN and GaN films on the R-plane sapphire”** Physica Status Solidi (c) 4, No.5, 1689-1693 (2007).
259. Sandip Basu, Michel W. Barsoum, Adrian D. Williams, and T. D. Moustakas, **“Spherical Nanoindentation and Deformation Mechanism in Free-standing GaN Films”** J. Appl. Phys. 101, 083522 (2007)
260. Yan Li, Anirban Bhattacharyya, Christos Thomidis, Theodore D. Moustakas and Roberto Paiella **“Non-linear Optical Waveguides based on near-infrared intersubband transitions in GaN/AlN Quantum Wells”** Optics Express, 15, 5860-5865 (2007)
261. Tao Xu, A. Nikiforov, R. France, C. Thomidis, A. Williams and T. D. Moustakas, **“Blue-Green-Red LEDs based on InGaN Quantum Dots (QDs) grown by molecular beam epitaxy”**. Physica Status Solidi (a) 204, No. 6, 2098 (2007).
262. S. Riyopoulos, T. D. Moustakas and J. S. Cabalu, **“Plasma nanosheath formation with carrier accumulation and enhanced localized spontaneous emission at “quantum wedges” in textured GaN”**. Physics of Plasmas 14, 053501(2007)
263. S. Riyopoulos, T. D. Moustakas and J. S. Cabalu, **“Enhanced transmission through quasirandom nanostructured dielectric interface via supercritical angle scattering”**, J. Appl. Phys. 102, 043111 (2007).
- * Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology* (Sept. 10, 2007, Editor David Awschalom)
264. Tao Xu, Lin Zhou, Yiyi Wang, Ahmet S. Ozcan, K. F. Ludwig, David Smith and T. D. Moustakas, **“GaN Quantum Dot Superlattice Grown by Molecular Beam Epitaxy at High Temperature”**, J. Appl. Phys. Vol. 102, 073517 (2007)
- * Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology* (October 22,, 2007, Editor David Awschalom)
265. Y. Wang, A. Ozcan, C. Sanborn, K. Ludwig, A. Bhattacharyya, R. Chandrasekaran, T. D. Moustakas, L. Zhou, and D. Smith, **“Real-Time X-Ray Studies of Gallium Nitride Nanodot Formation by Droplet Heteroepitaxy”** J. of Appl. Phys. 102, 073522 (2007).
266. L. F. J. Piper, L. Colakerol, T. Learmonth, K. E. Smith, F. Fuchs, J. Furthmuller, F. Bechstedt, T-C. Chen, T. D. Moustakas and J-H Guo **“Electronic structure of InN studied using soft X-ray emission, soft X-ray absorption and quasiparticle band structure calculations”** Phys. Rev. B 76, 245204 (2007)

267. Yan Li, Anirban Bhattacharyya, Christos Thomidis, Theodore D. Moustakas and Roberto Paiella, **“Ultrafast all-optical switching with low saturation energy via intersubband transitions in GaN / AlN quantum-well waveguides”** Optics Express, Vol. **15**, pp. 17922-17927 (2007)
268. K. Driscoll, A. Bhattacharyya, T. D. Moustakas, R. Paiella, L. Zhou, D. J. Smith, **“Intersubband absorption in AlN / GaN / AlGaN coupled quantum wells”**, Appl. Phys. Lett. **91**, 141104 (2007)
269. Theodore D. Moustakas and Mira Misra (INVITED) **“Origin of the high photoconductivity gain in AlGaN films”** in *Optoelectronic Devices: Physics, Fabrication and Applications IV*, Edited by J. Piprek and J. J. Wang, Proc. of SPIE Vol. 6766, p. 67660C-1 (2007)
270. R. Chandrasekaran, A. Bhattacharyya, R. France, C. Thomidis, A. Williams and T. D. Moustakas, **“Ultraviolet light emitting diodes using non-polar a-plane AlGaN MQWs”**, Mater. Res. Soc. Symp. Proc. Vol. 955, paper 0955-104-08 (2007)
271. Tao Xu, Alexey Nikiforov, Ryan France, Christos Thomidis, Adrian Williams, T. D. Moustakas, Lin Zhou and David J. Smith, **“Blue-green-red LEDs based on InGaN Quantum dots by plasma-assisted MBE using GaN QDs for dislocation filtering”** Mater. Res. Soc. Symp. Proc. **955E**, Paper No. 0955-I05-05 (2007).
- 2008**
272. Josh Abell and T. D. Moustakas, **“The role of dislocations as non-radiative recombination centers in InGaN MQWs”** Appl. Phys. Lett. **92**, 091901 (2008)
273. Enrico Bellotti, Kristina Driscoll, Theodore D. Moustakas and Roberto Paiella, **“Monte Carlo study of GaN versus GaAs terahertz quantum cascade structures”**, Appl. Phys. Lett. **92**, 101112 (2008)
- * Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology* (March 24, 2008, Editor David Awschalom)
274. Lin Zhou, R. Chandrasekaran, T. D. Moustakas and David J. Smith, **“Structural characterization of non-polar (1120) and semi-polar (1126) GaN films grown on r-plane sapphire”**, J. of Crystal Growth, **310** 2981 (2008).
275. E. Dimakis, A. Yu Nikiforov, C. Thomidis, L. Zhou, D. J. Smith. J. Abell, C –K. Kao and T. D. Moustakas, **“Growth and properties of near-UV light emitting diodes based on InN / GaN quantum wells”** Physica Status Solidi (a) **205**, 1070 (2008)
276. C. Thomidis, A. Yu. Nikiforov, Tao Xu, and Theodore D. Moustakas, **“InGaN-based LEDs grown by plasma-assisted MBE on (0001) sapphire with GaN QDs in the nucleation layer”** Physica Status Solidi (c) **5**, 2309 (2008)
277. L. Colakerol, L. F. J. Piper, A. Fedorov, T. C. Chen, T. D. Moustakas and K. E. Smith **“Observation of an inverted band structure near the surface of InN”**, Europhysics Letters (EPL), **83** 47003 (2008)
278. John Henson, Anirban Bhattacharyya, Theodore D. Moustakas, and Roberto Paiella, **“Controlling the recombination rate of semiconductor active layers via coupling to dispersion-engineered surface plasmons”** J. Opt. Soc. of Am. B/ Vol. **25**, 1328 (2008)
279. T. D. Moustakas, Tao Xu, C. Thomidis, A. Yu Nikiforov, Lin Zhou and David J. Smith, **“Growth of III-Nitride quantum dots and their applications to blue-green LEDs”** Physica Status Solidi A **205**, No. 11, 2560-2565 (2008).

280. Y. Li, A. Bhattacharyya, C. Thomidis, Y. Liao, T. D. Moustakas and R. Paiella, **“Refractive-Index Nonlinearities of Intersubband Transitions in GaN/AlN Quantum-Well Waveguides”**, J. of Appl. Phys. **104**, 083101 (2008)
281. S. Pookpanratana, R. France, M. Bar, L. Weihardt, O. Fuchs, M. Blum, W. Yang, J. D. Denlinger, T. D. Moustakas and C. Heske, **“Intermixing and Chemical Structure at the interface between n-GaN and V-based contacts”** Appl. Phys. Lett. **93**, 172106 (2008)
282. M. Misra, A. Bhattacharyya and T.D. Moustakas, **“UV Detectors”**, Laser Focus World, November 2008, page 64.
283. E. Bellotti, N. Sucena Almeida, A. Moldawer, T. D. Moustakas, S. Chiarria, F. Bertazzi, E. Furno, M. Goano, G. Ghione, (INVITED) **“Physics-based design of III-Nitride and ZnO LEDs: from material properties to device optimization”** Proc. of the 17th European Workshop on Heterostructure Technology (HETECH 2008), Edited by Gaudenzio Meneghesso, pp. 21-26 (2008)
- 2009**
284. A. Bhattacharyya, T. D. Moustakas, Lin Zhou, David J. Smith and W. Hug, **“Deep ultraviolet emitting AlGaIn quantum wells with high internal quantum efficiency”** Appl. Phys. Lett. **94**, 181907 (2009)
285. Kristina Driscoll, Yitao Liao, Anirban Bhattacharyya, Lin Zhou, David J. Smith, Theodore D. Moustakas and Roberto Paiella, **“Optically pumped intersubband emission of short-wave infrared radiation with GaN/AlN quantum wells”**, Appl. Phys. Lett. **94**, 081120 (2009).
286. Enrico Bellotti, Kristina Driscoll, Theodore Moustakas and Roberto Paiella, **“Monte Carlo Simulations of Terahertz quantum cascade laser structures based on wide-bandgap semiconductors”**, J. Appl. Phys. **105**, 113103 (2009)
287. Spilios Riyopoulos and Theodore D. Moustakas **“One-dimensional carrier localization and effective quantum wire behavior in two-dimensional quantum wedges”** J. of Appl. Phys. **106**, 044303 (2009)
288. J. Henson, J. C. Heckel, E. Dimakis, J. Abell, A. Bhattacharyya, G. Chumanov, T. D. Moustakas and R. Paiella, **“Plasmon Enhanced Light Emission from InGaIn Quantum Wells via Coupling to Chemically Synthesized Silver Nanoparticles”**, Appl. Phys. Lett. **95**, 151109 (2009)
289. M. Wraback, G. A. Garrett, H. Shen, A. Bhattacharyya and T. D. Moustakas, **“Time-Resolved Photoluminescence Studies of Al_{0.72}Ga_{0.28}N Films with Incommensurate Chemical Ordering”**, ISDRS 2009, Dec. 9-11, 2009 (College Park, MD)
290. Saulius Nargelas, Tadas Malinauskas, Arūnas Kadys, Emmanouil Dimakis, Theodore D. Moustakas, and Kęstutis Jarašiusas **“Nonlinear carrier recombination and transport features in highly excited InN layer”** Phys. Status Solidi **C 6**, No. S2, Pages S735-S738 (2009)
291. Spilios Riyopoulos and Theodore D. Moustakas, **“Quantum Wire behavior in “wrinkled” Quantum wells deposited on Textured GaN”**, In *Gallium Nitride Materials and Devices IV*, Proc. of SPIE, Vol. **2716** (2009)
- 2010**
292. Y. Liao, C. Thomidis, C-k Kao, A. Moldawer, W. Zhang, Yi-Chung Chang, A. Yu. Nikiforov, E. Bellotti, and T. D. Moustakas, **“Milliwatt power AlGaIn-based deep ultraviolet LEDs by plasma-assisted MBE”** Phys. Status Solidi Rapid Research Letters **4**, No.1-2, 49-51 (January 2010)
293. K. Driscoll, Y. Liao, A. Bhattacharyya, T.D. Moustakas, R. Paiella, L. Zhou and D. Smith **“Optical and structural characterization of**

- GaN /AlGaIn quantum wells for intersubband device applications”** Phys. Status Solidi C **7**, No. 10, 2397 (June 2010)
294. S. Pookpanratana, R. France, M. Blum, A. Bell, M. Bar, L. Weinhardt, Y. Zhang, T. Hofmann, O. Fuchs, W. Yang, J. D. Denlinger, S. Mulcahy, T. D. Moustakas and C. Heske, **“Chemical Structure of Vanadium-based Contact formation on n-AlN”** J. Appl. Phys., **108**, 24906 (July 2010)
295. R. Chandrasekaran, T. D. Moustakas, A.S. Ozcan, K. F. Ludwig, L. Zhou and D. J. Smith, **“Growth Kinetics of AlN and GaN films grown by molecular beam epitaxy on R-plane sapphire substrates”** J. Appl. Phys. **108**, 43501 (August 2010)
296. J. Henson, E. Dimakis, J. Dimaria, R. Li, S. Minissale, L. Dal Negro, T. D. Moustakas and R. Paiella **“Enhanced near-green light emission from InGaIn quantum wells by use of tunable plasmonic resonances in silver nanoparticle arrays”** Optics Express, Vol. 18, No. 20, 21322-21329 (September 2010)
297. F. Sudradjat, K. Driscoll, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D.J. Smith, T. D. Moustakas and R. Paiella, **“Sequential tunneling transport in GaN /AlGaIn coupled quantum wells grown on free-standing GaN”** J. Appl. Phys. **108**, 103704 (November 2010)
298. F. Sudradjat, K. Driscoll, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D.J. Smith, T. D. Moustakas and R. Paiella, **“Experimental Observation of Sequential Tunneling Transport in GaN /AlGaIn Coupled Quantum Wells grown on Free-Standing GaN”** Mater. Res. Soc. Symp. Proc. **Vol. 1202**, paper number 1202-I09-20 (March 2010).
299. R. Paiella, K. Driscoll, Y. Liao, A. Bhattacharyya, L. Zhou, D. J. Smith and T.D. Moustakas (**Invited Paper**) **“Short-Wavelength Intersubband Light Emission from Optically Pumped GaN / AlN Quantum Wells”** Mater. Res. Soc. Symp. Proc. **Vol. 1202**, paper number 1202-I10-08 (2010)
300. Y. Liao, C. Thomidis, A. Bhattacharyya, C-k Kao, A. Moldawer, W. Zhang and T. D. Moustakas, **“Development of milliwatt power AlGaIn-based deep UV-LEDs by Plasma-assisted MBE”** Mater. Res. Soc. Symp. Proc. **Volume 1202**, paper number 1202-I10-01 (2010)
301. R. Paiella, K. Driscoll, Y. Li, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D. J. Smith, E. Bellotti, and T. D. Moustakas, (**Invited Paper**), **“Intersubband Device Applications of Nitride Quantum Structures”** In Quantum Sensing and Nanophotonic Devices VII; Proc. of SPIE **Vol.7608**, 76080N-1 (2010)
302. R. Paiella, K. Driscoll, Y. Li, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D. J. Smith, and T. D. Moustakas(**Invited Paper**), **“Intersubband Transitions in GaN-Based Quantum Wells: a New Materials Platform for Infrared Device Applications”**, In Infrared Remote Sensing and Instrumentation XVIII; Proc. of SPIE Vol. **7808** (2010)
- 2011**
303. Y. Liao, C. Thomidis, C-K. Kao, and T. D. Moustakas, **“AlGaIn based deep ultraviolet light emitting diodes with high internal quantum efficiency grown by molecular beam epitaxy”** Appl. Phys. Lett. **98**, 081110 (February 2011)
304. M. Katsikini, F. Pinakidou, J. Arvanitis, E. C. Paloura, S. Vess, Ph. Komninou, Z. Bougrioua, E. Iliopoulos and T. D. Moustakas **“Comparison of Fe and Si doping of GaN: An EXAFS and Raman study”**, Materials Science and Engineering B **176**, 723-726 (February 2011)
305. C-K Kao, A. Bhattacharyya, C. Thomidis, R. Paiella and T.D. Moustakas **“Electroabsorption modulators based on bulk GaN films and GaN/AlGaIn multiple quantum wells”** J. Appl. Phys. **109**, 083102

(April 2011). *Also selected to appear in the *Virtual Journal of Nanoscale Science & Technology* (May 2, 2011, Editor David Awschalom)

306. Lin Zhou, D. J. Smith, Martha R. McCartney, T. Xu and T. D. Moustakas, “**Measurement of Electric Field in individual wurtzite GaN quantum dots**” Appl. Phys. Lett. **99**, 101905 (Sept. 2011)
307. Theodore D. Moustakas and Anirban Bhattacharyya (**Invited Paper**) “**Experimental Evidence that the Plasma-assisted MBE Growth of Nitride Alloys is a Liquid Phase Epitaxy Process**”, ECS Transactions **35** (6), 63-71 (April 2011)
308. David J. Smith, Lin Zhou and T.D. Moustakas(**Invited Paper**) “**Structural Characterization of III-Nitride Materials and Devices**” QUANTUM SENSING AND NANOPHOTONIC DEVICES VIII Book Series: Proceedings of SPIE Volume: 7945 Article Number: 79451E (2011)
309. J. Henson, J. DiMaria, E. Dimakis, R. Li, S. Minissale, L. Dal Negro, T. D. Moustakas and R. Paiella, “**Plasmon Enhanced Emission Rates from III-Nitride Quantum Wells Using Tunable Surface Plasmons**”, Mat. Res. Soc. Proc. **Vol. 1294**, (2011)
310. T. D. Moustakas (**Invited Paper**) “**Nitride Semiconductors: Why they work in optoelectronic devices**”, ECS Transactions Vol. **41** (6), 3-11 (2011)
311. R. Paiella, J. Henson, J. DiMaria, E. Dimakis, R. Li, S. Minissale, L. Dal Negro, and T. D. Moustakas, (**Invited paper**), “**Plasmon-Enhanced Near-Green Light Emission from InGaN/GaN Quantum Wells**”, ECS Transactions Vol. **41** (6), (2011)
312. E.F. Pecora, W. Zhang, J. Yin, R. Paiella, L. Dal Negro and T. D. Moustakas, “**polarization properties of deep ultraviolet optical gain in Al-rich AlGa_N structures**”, Proc. ECS Transactions **35** (6), 63 (2011)

2012

313. Emanuele Francesco Pecora, Wei Zhang, Lin Zhou, David J. Smith, Jian Yin, Roberto Paiella, Luca Dal Negro, T. D. Moustakas, “**Sub-250nm room-temperature optical gain from AlGa_N/Al_N multiple quantum wells with strong band structure potential fluctuations**”, Appl. Phys. Lett. **100**, 061111 (February 2012)
314. Emanuele Francesco Pecora, Wei Zhang,, Jian Yin, Roberto Paiella, Luca Dal Negro, T. D. Moustakas, “**Polarization Properties of Deep-UV Optical Gain in Al-rich AlGa_N Structures**” Appl. Phys. Express **5**, 032103 (2012)
315. John Henson, Jeff DiMaria, Emmanouil Dimakis, T. D. Moustakas and R. Paiella, “**Plasmon-enhanced light emission based on lattice resonances of silver nanocylinder arrays**” Optics Letters, **37**, 79 (Jan 1, 2012)
316. Wei Zhang, A. Yu. Nikiforov, C. Thomidis, J. Woodward, H. Sun, Chen-Kai Kao, D. Bhattarai, A. Moldawer, L. Zhou, D. J. Smith and T. D. Moustakas, “**MBE growth of AlGa_N quantum wells on 6H-SiC substrates with high internal quantum efficiency**” Journal of Vacuum Science and Technology B **30** (2), 02B119-1 (March 2012)
317. T. D. Moustakas and A. Bhattacharyya, “**The role of liquid phase epitaxy during growth of AlGa_N by MBE**”, Phys. Status Solidi C **9**, No. 3–4, 580–583 (January 2012)
318. Yitao Liao, Chen-kai Kao, C. Thomidis, A. Moldawer, J. Woodward, D. Bhattarai and T. D. Moustakas, “**Recent progress of efficient deep UV-LEDs by plasma-assisted molecular beam epitaxy**” Phys. Status Solidi C **9**, No. 3–4, 798–801 (January 2012)
319. Chen-kai Kao, A. Bhattacharyya, C. Thomidis, A. Moldawer, R. Paiella and T. D. Moustakas, “**A comparative study of UV Electroabsorption Modulators based on**

Bulk III-Nitride Films and Multiple Quantum Wells” Phys. Status Solidi C **9**, No. 3–4, 770–773 (January 2012)

320. Faisal F. Sudradjat, Wei Zhang, Kristina Driscoll, Yitao Liao, Anirban Bhattacharyya, Christos Thomidis, Lin Zhou, David J. Smith, Theodore D. Moustakas, and Roberto Paiella, **“Sequential tunneling transport in GaN/AlGaIn quantum cascade structures”**, Phys. Status Solidi C **9**, No. 3–4, 588–591 (January 2012)
321. S. Pookpanratana, R. France, R. Félix, R. Wilks, L. Weinhardt, T. Hofmann, L. Tati Bismaths, S. Mulcahy, F. Kronast, T. D. Moustakas, M. Bär, and C. Heske, **“Microstructure of Vanadium-based contacts on n-GaN”**, Journal of Physics D: Applied Physics, **45**, 105401 (February 2012)
322. T. D. Moustakas, Y. Liao, C-k. Kao, C. Thomidis, A. Bhattacharyya, D. Bhattarai and A. Moldawer (Invited paper), **“Deep UV-LEDs with high IQE based on AlGaIn alloys with strong band structure potential fluctuations”** Proc. of SPIE Vol. 8278, 82780L-1 (March 2012)
323. J.C. Woicik, K.F. Ludwig, Jr., and T.D. Moustakas, **“Composition dependent bilayer atomic ordering in AlGaIn films examined by Polarization-Dependent Extended X-Ray Absorption Fine Structure”** Appl. Phys. Lett. **100**, 162105 (April 2012)
324. F. F. Sudradjat, W. Zhang, J. Woodward, H. Durmaz, T. D. Moustakas and R. Paiella, **“Far-infrared intersubband photodetectors based on double-step III-Nitride quantum wells”** Appl. Phys. Lett. **100**, 241113 (June 2012)
325. J. R. Schneck, E. Dimakis, S. Erramilli, T. D. Moustakas and L.D. Ziegler, **“Temperature dependent photon echoes of a GaN thin film”**, Appl. Phys. Lett. **101**, 142102 (October 2012)
326. T. D. Moustakas **“Influence of extended defects on optoelectronic and electronic nitride devices”** Lester Eastman Conference on High Performance Devices (LEC), 2012, (7-9 August 2012) IEEE Xplore Digital Library DOI: [10.1109/lec.2012.6410991](https://doi.org/10.1109/lec.2012.6410991)
327. A. Yu. Nikiforov, W. Zhang, J. Woodward, J. Yin, R. Paiella, K.F. Ludwig Jr., L. Zhou, D. J. Smith and T. D. Moustakas, **“Evidence of deep UV Amplified Spontaneous Emission in Electron Beam Pumped AlGaIn MQW-based Structures”**, Lester Eastman Conference on High Performance Devices (LEC), 2012, (7-9 August 2012) IEEE Xplore Digital Library DOI: [10.1109/lec.2012.6410975](https://doi.org/10.1109/lec.2012.6410975)
- 2013**
328. T. D. Moustakas **“The role of extended defects on the performance of optoelectronic devices in nitride semiconductors”** Physica Status Solidi A **210**, No.1, 169-174 (2013). DOI 10.1002/pssa.201200561
329. H. Sun, J. Woodward, J. Yin, A. Moldawer, E. F. Pecora, Alexey Yu. Nikiforov, L. Dal Negro, R. Paiella, K. Ludwig Jr. D.J. Smith and T. D. Moustakas, **Development of AlGaIn-based GRINSCH deep UV emitters by Molecular Beam Epitaxy”** J. Vac. Sci. and Technol. B **31(3)**, 03C117, (May/June 2013)
330. E. F. Pecora, W. Zhang, A. Yu. Nikiforov, J. Yin, R. Paiella, L. Dal Negro and T. D. Moustakas, **“Sub-250 nm light emission and optical gain in AlGaIn materials”** J. Appl. Phys. **113**, 013106 (Jan. 2013)
331. G. Staszczak, I. Gorczyca, T. Suzuki, X. Q. Wang, N.E. Chrstensen, A. Svane, E. Dimakis and T. D. Moustakas, **“Photoluminescence and pressure effects in short period InN/nGaIn superlattices”**, J. Appl. Phys. **113**, 123101 (March 2013)
332. L. Zhou, E. Dimakis, R. Hathwar, T. Aoki, D. J. Smith, T. D. Moustakas, S. M. Goodnick and M. R. McCartney **“Measurement and effects of polarization fields on one-monolayer-thick InN /GaIn multiple**

quantum wells”, Phys. Rev. B. **88**, 125310 (2013)

333. I. Gorczyca, T. Suski, G. Staszczak, N.E. Christensen, A. Svane, XQ Wang, E. Dimakis, T. Moustakas “**InN/GaN Superlattices: Band Structures and Their Pressure Dependence**” Japanese Journal of Applied Physics Vol. **52**, 08JL06 (August 2013)
334. Nicolas Di Fiori, Allison Squires, Daniel Bar, Theodore D. Moustakas and Amit Meller, “**Optoelectronic control of DNA translocation speed through solid-state nanopores**” Nature Nanotechnology, Published online 3 November 2013 /DOI: 10.1038/NNANO.2013.221
335. J. DiMaria, E. Dimakis, T. D. Moustakas and R. Paiella, “**Plasmonic off-axis unidirectional beaming of quantum-well luminescence**”, Appl. Phys. Lett. **103**, 251108 (2013)
336. A. D. Williams and T. D. Moustakas, (Invited Paper) “**Materials Issues for Vertical Gallium Nitride Power Devices**, ECS Transactions”, Volume 58 (4), 427-438 (2013)
337. T. Suski ; I. Gorczyca ; G. Staszczak ; X. Q. Wang ; N. E. Christensen ; A. Svane ; E. Dimakis and T. D. Moustakas “**Short period InN/nGaN superlattices: experiment versus theory**”, *Proc. SPIE* 8625, Gallium Nitride Materials and Devices VIII, 86250J (March 27, 2013); <http://dx.doi.org/10.1117/12.2004313>
338. A. Boley, H. Sun, M. R. McCartney, D. J. Smith, and T.D. Moustakas, “**Characterization of AlGaIn-based GRINSCHE Using TEM and Electron Holography**”, Microscopy and Microanalysis, **19**, (suppl. 2), 1382 (2013). doi:10.1017/S1431927613008908

2014

339. H. Sun and T. D. Moustakas, “**UV emitters based on an AlGaIn p-n junction in the form of graded-index separate confinement heterostructure**”, Applied Physics Express **7**,

012104 (2014)

(<http://dx.doi.org/10.7567/APEX.7.012104>)

340. I. Gorczyca, T. Suski, G. Staszczak, X. Q. Wang N. E. Christensen, A. Svane, , E. Dimakis, T. D. Moustakas, “**Short period polar and nonpolar mInN/nGaN superlattices**” Phys. Status Solidi C **11** No. 3-4 678-681 (2014). DOI 10.1002/pssc.201300424
341. A. Moldawer, A. Bhattacharyya, L.Zhou, D. J. Smith and T. D. Moustakas, “**Characterization of a-plane GaN templates grown by HVPE and high efficiency deep UV emitting AlGaIn /AlN MQWs grown by MBE on such templates**” Physica Status Solidi C **11**, No. 3-4, 585-589 (2014) DOI 10.1002/pssc.201300685
342. W. Pan, E. Dimakis, G.T. Wang, T.D. Moustakas, and D.C. Tsui, “**Two-dimensional electron gas in monolayer InN quantum wells**”, Appl. Phys. Lett. **105**, 213503 (2014)

2015

343. L. Colakerol, L.F.J. Piper, A. Fedorov, T. Chen, T.D. Moustakas, K.E. Smith, “**Potassium and ion beam induced electron accumulation in InN**”, Surface Science, **632**, 154-157 (2015)
344. E. F. Pecora, H. Sun, L. Dal Negro and T. D. Moustakas “**Deep-UV optical gain in AlGaIn-based graded-index separate confinement heterostructure**”, OPTICAL MATERIALS EXPRESS, Vol. 5, No. 4, pp. 809-817 (2015)
345. Gordie Brummer, Denis Nothern, A. Yu Nikiforov and T. D. Moustakas, “**Deep UV Distributed Bragg Reflectors based on Graded Composition AlGaIn Alloys**”, Appl. Phys. Lett. **106**, 221107 (2015)
346. E. Ziade, J. Yang, G. Brummer, D. Nothern, T. Moustakas, and A. J. Schmidt, “**Thermal transport through GaN-SiC interfaces from 300 to 600K**”, Appl. Phys. Lett. **107**, 091605 (2015).

2016

347. T. D. Moustakas, **“Ultraviolet Optoelectronic devices based on AlGa_N alloys grown by MBE”**, MRS Communications, Vol. 6, pp. 247-269 (2016) DOI:10.1557/mrc.2016.26
348. H. Sun, Alan Piquette, Madis Raukas, and T. D. Moustakas, **“Enhancement of yellow light extraction efficiency of Y₃Al₅O₁₂:Ce³⁺ ceramic converters using a TiO₂ photonic crystal”**, IEEE Photonics Journal, Vol. 8, issue 1, Paper # 4500310 (February 2016) DOI: 10.1109/JPHOT.2016.2527019
349. Elbara Ziade, Jia Yang, Gordie Brummer, Denis Nothorn, Theodore Moustakas **“Mapping Thickness Dependent Thermal Conductivity of GaN”** Journal of Heat Transfer **138**, 020906 (2016) / DOI 10.1115/1.4032234
350. H. Sun, E. F. Pecora, J. Woodward, D. J. Smith, L. Dal Negro, T. D. Moustakas, **“Effect of Indium in Al_{0.65}Ga_{0.35}N/Al_{0.8}Ga_{0.2}N MQWs for the development of deep UV laser structures in the form of graded-index separate confinement heterostructure (GRINSCH), Phys. Status Solidi A **213**, No. 5, 1165-1169 (2016) /DOI 10.1002/pssa.201532807**
351. Habibe Durmaz, Denis Nothorn, Gordon Brummer, Theodore D. Moustakas, and Roberto Paiella, **“Terahertz intersubband photodetectors based on semi-polar GaN/AlGa_N heterostructures”**, Applied Physics Letters, **108**, 201102 (2016)
352. B. Song, H. Sun, C-K Kao and T. D. Moustakas, **“Growth mode of Nitride semiconductors on nano-patterned sapphire substrates by molecular beam Epitaxy”**, Phys. Status Solidi C Vol. 13, No. 5-6, 195-199 (2016). DOI 10.1002/pssc.201510212.
353. Gordie Brummer, Denis Nothorn, and T.D. Moustakas, **“Structural and Optical Properties of Al_{0.30}Ga_{0.70}N/AlN Multiple Quantum Wells Grown on Vicinal 4H p-SiC**

Substrates by Molecular Beam Epitaxy”, MRS Advances pp. 1-6 (2016). DOI: 10.1557/adv.2016.627

354. G. Dimitrakopoulos, C. Bazioti, T. Karakostas, J. Kioseoglou, T. Pavloudis, S. Kret, J. Kozirowska, T. Suski, E. Dimakis, T. Moustakas, and P. Komninou, **“Structure of short period In(Ga)N/GaN superlattices comprising ultra-thin quantum wells”**. European Microscopy Congress 2016: Proceedings. 592–593, DOI: 10.1002/9783527808465.EMC2016.57823.

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355. T. D. Moustakas and R. Paiella, **“Optoelectronic device physics and technology of nitride semiconductors from the UV to the terahertz: a review”** (Invited) Rep. Prog. Phys. **80**, 106501 (2017) <https://doi.org/10.1088/1361-6633/aa7bb2>
356. Elbara Ziade, Jia Yang, Gordie Brummer, Denis Nothorn, Theodore Moustakas, and Aaron Schmidt, **“Thickness Dependent Thermal Conductivity of Gallium Nitride”**. Appl. Phys. Lett. **110**, 031903 (2017)
357. Haiding Sun, Jian Yin, Emanuele Francesco Pecora, Luca Dal Negro, Roberto Paiella, and Theodore D. Moustakas, **“Deep UV emitting AlGa_N multiple quantum well graded-index separate-confinement heterostructures grown by MBE on SiC substrates”**, IEEE Photonics Journal, Vol. 9, No. 4, 2201109 (2017) (DOI: 10.1109/JPHOT.2017.2716420)
358. J. M. Woodward, A. Yu. Nikiforov, K. F. Ludwig Jr., and T. D. Moustakas, **“Analysis of InGa_N nanodots grown by droplet heteroepitaxy using grazing-incidence small-angle X-ray scattering and electron microscopy”**, J. Appl. Phys. **122**, 065305 (2017); DOI: 10.1063/1.4986272
359. V. Jovic, S. Moser, S. Ulstrup, D. Goodacre, E. Dimakis, R. Koch, L. Moreschini, S.-K. Mo, C. Jozwiak, A. Bostwick, E. Rotenberg, T. D. Moustakas and K. E. Smith, **“How Indium**

- Nitride senses water**", Nano Letters **17**, 7339-7344 (2017)
DOI:10.1021/acs.nanolett.7b02985
360. R. Paiella, F. F. Sudradjat, H. Durmaz, W. Zhang, D. Nothorn, G. Brummer, T. D. Moustakas (**Invited**) "**III-Nitride Terahertz Photodetectors for the Reststrahlen Gap of Intersubband Optoelectronics**" SPIE Proceedings **Vol 10353: Optical Sensing, Imaging, and Photon Counting: Nanostructured Devices and Applications 2017**, 103530I-1 (29 August 2017). DOI: 10.1117/12.2274040
365. A. D. Williams and T. D. Moustakas, "**Development and Application of an Etch-Back Process for Orientation-Independent Planarization of GaN**" J. Electrochemical Society (Submitted)

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361. G.P. Dimitrakopoulos, I.G. Vasileiadis, C. Bazioti, J. Smalc-Koziorowska, S. Kret, E. Dimakis, N. Florini, Th. Kehagias, T. Suski, Th. Karakostas, T.D. Moustakas, and Ph. Komninou, "**Compositional and strain Analysis of In(Ga)N/GaN short period Superlattices**", J. Appl. Phys. **123**, 024304 (2018).

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362. T.D. Moustakas, "**Development of AlGaIn UV LEDs for environmental, medical, and industrial applications**", Materials Today: Proceedings (Submitted)
363. T. D. Moustakas, "**Fundamental Differences Between Nitride Semiconductors and Traditional III-V compounds**" Semicond. Sci. and Technol. (**Invited** Topical Review Paper)
364. J. R. Schneck, A. Bhattacharyya, T. D. Moustakas and L. D. Ziegler, "**Ultrafast relaxation of excitons, free carriers, and trap states in GaN thin films**", J. Appl. Phys. (submitted)

Invited Presentations in Conferences

1. T.D. Moustakas “**Sputtered Hydrogenated Amorphous Silicon**”, *Electronic Materials Conference* (University of California at Santa Barbara, June 28, 1978).
2. T.D. Moustakas “**Reactively Sputtered Amorphous Silicon**”, Presented at *SERI’s Amorphous Silicon Review Meeting* (Washington, D.C., April 22, 1980).
3. T.D. Moustakas “**Hydrogenated Amorphous Silicon**”, Presented at the *7th Annual Spring Symposium of North Central Chapter of the American Vacuum Society* (Detroit, MI, May 8, 1980).
4. T.D. Moustakas “**Charge Transport and Properties of Amorphous Semiconductors**”, *Gordon Conference on Radiation Chemistry* (Brewster Academy, Wolfeboro, N.H., June 28, 1982).
5. T.D. Moustakas, “**Correlation between Deposition Parameters and Performance of Sputtered Amorphous Silicon Solar Cells**”, *SPIE Symposium on Photovoltaics for Solar Energy Applications* (Arlington, Va., April 6, 1983).
6. T.D. Moustakas, “**High Efficiency Amorphous Silicon Solar Cells Fabricated by Reactive Sputtering**”, *165th Electrochemical Society Meeting* (San Francisco, May 8, 1983).
7. T.D. Moustakas, “**Progress in Amorphous Silicon Solar Cells Produced by Reactive Sputtering**”, *5th European Communities Photovoltaic Solar Energy Conference* (Athens, Greece, October 17, 1983).
8. T.D. Moustakas, “**An Overview of Amorphous Silicon Solar Cells**”, *166th Electrochemical Society Meeting* (New Orleans, October 9, 1984), Ext. Abstract **84-2**, p. 422 (1984).
9. T.D. Moustakas “**Synthesis of Amorphous Silicon**”, *Superficies* (Merida, Mexico, August 18, 1985).
10. T.D. Moustakas “**Synthesis of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons**”, *Abstracts* (MRS Fall meeting 1987), 379.
11. T.D. Moustakas “**Growth of III-V Compound by MBE**”, *Symposium on Metalorganic CVD* (Florida, February 1987).
12. T.D. Moustakas “**Tungsten Carbide-transition Metal Superlattices: Growth and Characterization**”, *Symposium on High Temperature Structural Composites* (Stevens Institute of Technology, N.J., May 1987).
13. T.D. Moustakas “**Synthesis of Polycrystalline Diamond**”, *U.S. Government Program Review* (North Carolina, July 1987).
14. T.D. Moustakas “**Growth and Doping Studies of Amorphous Silicon Produced by Sputtering**”, *Workshop on Physics and Applications of Amorphous Silicon* (Torino, September 1987).
15. T.D. Moustakas “**Synthesis of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons**”, *Metal Science Club of New York* (April 7, 1988).
16. T.D. Moustakas “**Synthesis of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons**”, *2nd International Seminar on Metal Organic and Plasma Assisted CVD* (Florida, February 1988).
17. T.D. Moustakas “**Synthesis and Structure of Diamond Thin Films**”, *11th International Symposium on the Reactivity of Solids* (Princeton, June 1988).
18. T.D. Moustakas “**Synthesis of Diamond Thin Films**”, *2nd International Symposium on the physics and Applications of Amorphous Solids* (Torino, Sept. 1988).

19. T.D. Moustakas “**Growth of Diamond Films by Filament-assisted CVD,**” *Metallurgical Society Meeting on Coatings* (Stevens Institute, May 1989).
20. T.D. Moustakas “**Tungsten Carbide-Transition Metal Superlattices,**” *American Crystallographic Soc. Meeting* (Seattle, July 1989).
21. T.D. Moustakas “**Growth Structure and Properties of Hydrogenated Amorphous Silicon,**” *Indian Assoc. of Advancement of Science* (Calcutta, August 1989).
22. T.D. Moustakas “**Synthesis of Polycrystalline Diamond Films by Filament-assisted CVD of Hydrocarbons,**” *1990 N.E. American Vacuum Society Meeting* (Burlington, Mass., June 18, 1990).
23. T.D. Moustakas “**Nucleation and Growth of Diamond Thin Films,**” 20th International Conference on the Physics of Semiconductors (Thessaloniki, Greece, August 6, 1990).
24. T.D. Moustakas “**Defect-Induced Nucleation of Diamond Films,**” The American Physical Society (Cincinnati, Ohio, March 18, 1991), *Bull. of Amer. Phys. Soc.* **35**, 954 (1991).
25. T.D. Moustakas “**Growth of GaN by ECR-assisted MBE,**” 7th Trieste Semiconductor Symposium on *Wide-Band-Gap Semiconductors* (Trieste, Italy, June 8, 1992).
26. T.D. Moustakas “**Growth of GaN by ECR-assisted MBE,**” MRS Symposium on *Semiconductor Heterostructures for Photonic and Electronic Applications* (Boston, December 1992).
27. T.D. Moustakas “**Growth and Doping of GaN Films by ECR-assisted MBE,**” *Workshop on Wide Gap Semiconductors* (Lawrence Berkley Laboratory, February 19, 1993).
28. T.D. Moustakas “**Growth and Doping of GaN Films by ECR-assisted MBE,**” *1993 American Physical Society March Meeting* (tutorial) (Seattle, March 21, 1993).
29. T.D. Moustakas “**Potential of III-V Nitrides for Optical and Electronic Applications,**” *183rd Meeting of the Electrochemical Society: Symposium on Electronic Materials Technologies for the 21st Century* (Honolulu, May 16, 1993), *Extended Abstracts* **91-3**, 955 (1993).
30. T.D. Moustakas “**Growth and Doping of GaN by ECR-assisted MBE,**” *II-VI Light Emitting Structures Workshop* (Philips Labs, November 1993).
31. T.D. Moustakas “**Growth and Properties of GaN Produced by ECR-MBE,**” *Physics and Chemistry of Semiconductor Interfaces-21* (Mohonk, N.Y., January 1994).
32. T.D. Moustakas “**Growth and Properties of GaN Produced by ECR-MBE,**” *New England Combined Chapter of the American Vacuum Society* (Burlington, Mass., April 1994).
33. T.D. Moustakas “**Growth and Properties of GaN Produced by ECR-MBE,**” *LEOS Summer Topical Conference on Optoelectronic Materials Growth and Processing* (Lake Tahoe, Nevada, July 1994).
34. T.D. Moustakas “**Growth and Properties of GaN Thin Films,**” *Canadian, American and Mexican Physical Societies Meeting* (Cancun, Mexico, September 1994).
35. T.D. Moustakas “**Growth and Properties of GaN Thin Films,**” *LEOS 7th Annual Meeting* (Boston, Mass., October 1994), **2**, 25 (1994).
36. T.D. Moustakas “**Growth of GaN Films by Electron Cyclotron Resonance Plasma-assisted Molecular Beam Epitaxy,**” *1995 Spring MRS Meeting* (San Francisco, April 1995).
37. T.D. Moustakas “**Growth of III-V Nitrides and Fabrication of Optoelectronic Devices by ECR-assisted MBE,**” *6th International Conference on Silicon Carbide and Related Materials* (Kyoto, Japan, September 1995).
38. T.D. Moustakas “**Growth and Conductivity Control of GaN by ECR-MBE,**” *Topical Workshop on III-V Nitrides* (Nagoya, Japan, September 1995).

39. T.D. Moustakas “**The Growth of GaN by Molecular Beam Epitaxy (MBE),**” *6th Regional Conference, ACCG/East-95* (Atlantic City, N.J., October 1995).
40. T.D. Moustakas “**Epitaxial Growth and Properties of GaN by ECR-assisted MBE,**” MRS Meeting *1st International Symposium of Gallium Nitride*, (Boston, December 1995) *Abstracts* p.11.
41. T.D. Moustakas “**InGaN Alloys,**” *3rd Nitride Workshops* (St. Louis, March 13, 1996).
42. T.D. Moustakas “**III-V Nitrides and their Optoelectronic Applications**”, Technical Conference on Telecommunications R & D in Massachusetts (University of Massachusetts at Lowell, March 1996).
43. R. Singh and T.D. Moustakas “**Growth of InGaN Films Produced by Electron Cyclotron Resonance MBE,**” *Electrochemical Society Meeting* (Los Angeles, May 1996).
44. T.D. Moustakas “**Growth of III-V Nitrides by MBE,**” *First European Conference on SiC and Related Materials* (Heraklion, Crete, Greece, October 1996)
45. T.D. Moustakas “**III-V Nitrides and their Applications**”, *N.E Chapter of the American Vacuum Society* (Burlington, Mass., December 1996)
46. T.D. Moustakas “**III-V Nitrides, Epitaxial Growth and Applications,**” *The Electrochemical Society, New England Local Section* (Waltham, Mass., February 1997)
47. T.D. Moustakas “**Material Physics Issues of the Wide-gap Nitrides,**” *American Physical Society* (Kansas City, March 1997)
48. T.D. Moustakas “**MBE Growth and Properties of III-V Nitrides,**” *Symposium at GaN Solid State Devices at Wright Patterson Laboratories* (Dayton, Ohio, September 1997)
49. T.D. Moustakas “**MBE Growth and p-doping Characteristics of III-V Nitrides**”, *Second International Conference on Nitride Semiconductors* (Tokushima, Japan, October 1997)
50. T.D. Moustakas “**The Role of Basic Research in the 21st Century,**” *The Science and Technology Seminar Open to the Public by the Venture Business Laboratory* (Tokushima, Japan, October 1997)
51. T.D. Moustakas “**Growth and Characterization of GaN-based Light Emitters by ECR-MBE,**” *Recent Progress in III-V Nitrides-based Short Wavelength Optical Devices and Materials* (Tokushima, Japan, November 1997)
52. T.D. Moustakas “**Structure and Optoelectronic Properties of AlGaIn and InGaIn Alloys,**” *Materials Research Society* (Boston, December 1997)
53. T.D. Moustakas “**Studies of Doping and Alloying Phenomena in III-V Nitrides,**” *9th Seoul International Symposium on the Physics of Semiconductors and Applications* (Seoul, Korea, Nov. 1998)
54. T.D. Moustakas “**Phase Separation and long range order in InGaIn alloys grown by MBE**”, Centennial American Physical Society Meeting (Atlanta, March 20, 1999) *Bulletin of the American Physical*, p.1607.
55. T.D. Moustakas “**Wide Band Gaps Materials Overview**”, *26th Annual Symposium of International Microelectronics and Packaging Society* (Andover, MA, May 13th 1999).
56. T.D. Moustakas “**Epitaxial Growth and Properties of III-V Nitrides**”, *Summer School on Advanced Materials for Industrial Application* (Kavala, Greece, June 20th – 27th, 1999)
57. T.D. Moustakas “**Opto-electronic Applications of III-V Nitrides**”, *Materials Physics School, Aristotle University, Thessaloniki Greece* (Nov. 12 1999).
58. H. M. Ng, T.D. Moustakas “**Group III Nitride VCSELs structures grown by Molecular Beam Epitaxy**”, *Symposium - Physics and Simulation of*

Optoelectronic Devices, SPIE Photonics West Meeting (San Jose, Jan 24 2000).

59. M. Misra, E. Iliopoulos, D. Doppalapudi, H.M. Ng, T. D. Moustakas “**Photoconductive Detectors Fabricated on GaN and Al_xGa_{1-x}N Films Grown by Molecular Beam Epitaxy**” 6th GaN Workshop Richmond, VA (March 12, 2000)
60. T.D. Moustakas, M. Misra, and A. Sampath, “**Vertical Transport in n-GaN Films**” 6th GaN Workshop Richmond, VA (March 12, 2000)
61. T.D. Moustakas “**Growth and Device Applications of III-V Nitrides by MBE**”, 5th International Workshop on Expert Evaluation and Control of Compound Semiconductor Materials and Technologies, Heraklion, Crete, Greece (May 21, 2000)
62. T.D. Moustakas “**MBE III-V Nitrides**”, Plenary speaker, 11th International Conference on Molecular Beam Epitaxy, Beijing, China -Plenary Talk (September 10, 2000)
63. T. D. Moustakas “**Ordering in Nitride Alloys**”, 2001 Lawrence Symposium on Critical Issues in Epitaxy, Arizona State University (Jan 3, 2001)
64. T. D. Moustakas, “**Group III-Nitride VCSEL structures grown by MBE and Ordering in AlGa_xN Alloys**”, DARPA UV-Emitters Study Group, Arlington VA, (April 8-11, 2001).
65. T. D. Moustakas “**Growth of Nitrides by MBE**”, Army Research Laboratory, Adelphi (May 3, 2001)
66. T.D. Moustakas, “**Physics of III-V compounds**”, A series of lectures in the Graduate Program “Physics of Materials” of the Aristotle University of Thessaloniki, Greece (June 1-8, 2001).
67. T. D. Moustakas, “**MBE Growth of Wide-Bandgap Nitrides**”, Symposium on Gallium Nitride Based Technologies, Photonics West, San Jose (Jan. 21-22, 2002)
68. T. D. Moustakas, “**A series of lectures on Nitride Semiconductors**”, MIT (Spring 2002)
69. T. D. Moustakas, “**Phase Separation and Long Range Atomic Order in Nitride Alloy**”, 7th Nitride Workshop, Richmond Virginia (March 11-13, 2002)
70. T. D. Moustakas, Yan Shao, T. C. Chen, Sandeep Iyer, N. G. Chu and D. B. Fenner, “**Growth of GaN by Gas-Cluster-Ion-Beam Deposition (GCIB)**”, 7th Nitride Workshop, Richmond Virginia (March 11-13, 2002)
71. T. D. Moustakas, “**III-Nitrides-Growth and Applications**”, Arizona State University (March 25, 2002)
72. T. D. Moustakas, “**VCSEL structures based on III-Nitride Semiconductors**”, MIT Micro photonics Center (April 18, 2002)
73. T.D. Moustakas “**Growth of III-Nitrides by MBE**”, Centennial Meeting of the Electrochemical Society, Philadelphia, (May 12 –17 2002)
74. T. D. Moustakas, A. Bhattacharyya, I. Friel, J. Cabalu and Sandeep Iyer, “**Ultraviolet Resonant Cavity Light Emitting Diodes grown by Molecular Beam Epitaxy on non-polar Gallium Nitride Substrates**” DARPA meeting, Daytona Beach, Florida (May 21st, 2002).
75. E. Iliopoulos and T. D. Moustakas, “**Growth of III-Nitrides by Molecular beam epitaxy**”, National Synchrotron light source users meeting, Brookhaven National Labs (May 22nd 2002).
76. Enrico Bellotti and T.D. Moustakas, “**Design and Fabrication of GaN-based Static Induction Transistor**” Symposium on Static Induction Devices (Tokyo, Japan, May. 2002)
77. T. D. Moustakas, “**III-Nitride Semiconductors and their applications to Optical and Electronic Devices**” XVIII Pan-Hellenic Symposium on Solid State Physics and Materials Science Heraklion, Crete, Greece (Sept. 15-18, 2002).
78. T.D. Moustakas “**Ordering in Ternary Nitride Alloys**” 13th International Conference on Ternary and Multinary Compounds, Paris (Oct. 14-18, 2002)

79. T. D. Moustakas “**Basic and Applied Research and their Benefits to Society**” Presentation upon receiving an Honorary Doctoral Degree from the Aristotle University of Thessaloniki (June 26,2003)
80. T.D. Moustakas “**Physics and Technology of Optoelectronic Materials and Devices**” *A series of lectures in the Graduate Program “Physics of Materials” of the Aristotle University of Thessaloniki, Greece (June 23-27, 2003).*
81. T. D. Moustakas “**Optoelectronic Devices based on Nitride Quantum Well Structures**” Aristotle University of Thessaloniki, Greece (June 27, 2003).
82. T. D. Moustakas “**Wide Band Gap Semiconductors: Photonic and Electronic Applications**” International Conference on Electro-ceramics (MIT, August 3-7, 2003).
83. T.D. Moustakas, “**GaN LEDs for Solid State Lighting**”, the Electrochemical Society-New England Section (Northeastern University, March 9, 2004).
84. D. Doppalapudi, R. Milcak, J. Chan, H.L. Tuller, J. Abell, W. Li and T.D. Moustakas, “**Sensors based on SiC-AlN MEMS**” 206th Electrochemical Society Meeting (Honolulu, Hawaii, October 2004)
85. T.D. Moustakas, “**Growth of InN Films by Cluster Beam Epitaxy and RF plasma-assisted MBE**” Indium Nitride Workshop 2, (Kailua-Kona, Hawaii, January 2005).
86. T.D. Moustakas, “**Nitride UV-LEDs based on flat and “wrinkled” quantum wells**”, Photonics West 2005 (San Jose, January, 2005).
87. T. D. Moustakas, “**Low-cost Blue/UV LEDs with very high Photon Conversion and Extraction Efficiency for White Lighting**” 2005 DOE Solid-State Lighting Program Planning Workshop (San Diego, February 2005).
88. T. D. Moustakas, “**GaN LEDs for Solid State Lighting**”, Saint-Gobain Lighting Community Meeting (Boston June 9, 2005)
89. T.D. Moustakas, “**MBE and HVPE Growth of III-Nitrides**” 16th American Conference on Crystal Growth and Epitaxy (Big Sky, Montana, July 10-15, 2005).
90. T. D. Moustakas, J. S. Cabalu, R. Chandrasekaran, S. Riyopoulos “**High efficiency LEDs based on textured GaN templates with wrinkled quantum wells**”, Optics East (Boston, Oct 25. 2005).
91. T.D. Moustakas “**Physics of Textured III-Nitride Quantum Wells for Applications to LEDs**” International Semiconductor Device Research Symposium (Washington DC, Dec. 7-9, 2005).
92. T. D. Moustakas, “**Low-cost Blue/UV LEDs with very high Photon Conversion and Extraction Efficiency for White Lighting**” 2006 DOE Solid-State Lighting Program Planning Workshop (Orlando, February 1-3, 2006).
93. T. D. Moustakas, “**A New Model Describing the Plasma-Assisted MBE Growth of GaN Thin Films and its Alloys with AlN and InN**”, International Conference on Metallurgical Coatings and Thin Films, (San Diego May 1-5, 2006).
94. T. D. Moustakas , “**Significant achievements in III-nitride semiconductors research in the last fifteen years**”, Plenary Speaker, European Workshop on III-Nitride Materials and Devices- Plenary Talk (Heraklion, Crete, Greece, Sept. 18-20, 2006).
95. T. D. Moustakas, “**A new model describing the plasma-assisted MBE growth of GaN thin films**” International Workshop on Nitride Semiconductors 2006, (Kyoto, Japan, Oct. 22-27, 2006)
96. T. D. Moustakas, “**Nitride Semiconductor LEDs**” New England chapter of IEEE LEOS (Lincoln Laboratories, Jan. 11, 2007)
97. T. D. Moustakas, “**GaN R&D at Boston University with emphasis in Solid State Lighting**” The 10th Annual Boston University Photonics Center Symposium (June 8th, 2007).

98. T. D. Moustakas, **“Origin of the high photoconductive gain in AlGaIn thin films”** SPIE Symposium on “Optoelectronic Devices: Physics, Fabrication, and Applications IV” (Optics East, Boston Sept. 9-12, 2007)
99. T. D. Moustakas, **“Progress in III-nitride semiconductors research and the influence of Jacques Pankove’s work in the development of this field”** Joint OSA /IEEE-LEOS Denver Seminar Jacques Pankove tribute talk (Boulder, November 8, 2007)
100. T.D. Moustakas, **“Blue-Green LEDs based on III-Nitride quantum wells and quantum dots”**, 3rd International Conference on Micro-Nanoelectronics, Nanotechnology and MEMS (Athens, Greece, November 18-21, 2007).
101. T. D. Moustakas, **“GaIn-based Light Emitting Diodes for Solid State Lighting”**, Massachusetts Hydrogen Coalition (Boston, March 19, 2008).
102. T. D. Moustakas, **“GaIn-based Light Emitting Diodes for Solid State Lighting and UV Applications”**, Photonics Forum (Boston University, March 24, 2008)
103. T. D. Moustakas, **Materials Issues responsible for the “green gap”**, Roundtable Discussions of the Solid State Lighting R&D Task Structure (U. S. Department of Energy, Washington, DC, Sept.17-18, 2008)
104. T. D. Moustakas, **“GaIn-based Light Emitting Diodes for Solid State Lighting and UV Applications”**, New England Chinese Information and Networking Association (Waltham MA, Dec. 10, 2008)
105. E. Bellotti, N. Sucena Almeida, A. Moldawer, T. D. Moustakas, S. Chiaria, F. Bertazzi, E. Furno, M.Goano, G. Ghione, **“Physics-based design of III-Nitride and ZnO LEDs: from material properties to device optimization”**, 17th European Workshop on Heterostructure Technology (HETECH 2008), (Venice, Italy, Nov. 3-5, 2008)
106. T. D. Moustakas, **“Fundamental Issues of UV Materials and Devices”**, ARL Workshop on Nitride Semiconductor Optoelectronics for Logistics in Energy, Health and Safety. (Arlington, VA, May 19th, 2009)
107. T. D. Moustakas **“AlGaIn Quantum Wells Emitting below 250 nm with Internal Quantum Efficiency as high as 50%”** in the 2009 Fall MRS Symposium **“III-Nitride Materials for Sensing, Energy Conversion and Controlled Light-Matter Interaction”** (Boston, Nov. 29, -Dec.3, 2009)
108. R. Paiella, K. Driscoll, Y. Li, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D. J. Smith, E. Bellotti, and T. D. Moustakas, **“Intersubband Device Applications of Nitride Quantum Structures”** Photonics West (San Jose CA, Jan 2010)
109. T. D. Moustakas **“Fundamental Issues in Green and UV LEDs”** SEMI New England Forum on High Brightness LEDs. (Teradyne Inc., N. Reading MA, March 10, 2010)
110. Yitao Liao, Christos Thomidis and Theodore D. Moustakas **“Recent Advances of High Efficiency Deep UV-LEDs by plasma-assisted Molecular Beam Epitaxy”** ISSLED 2010 (Beijing China May 17, 2010)
111. David Smith, Lin Zhou and Theodore D. Moustakas, **“Structural Characterization of III-Nitride Heterostructures: Some Recent Studies”** ISSLED 2010 (Beijing China, May 17, 2010)
112. T. D. Moustakas, C. Thomidis, Y. Liao and C-K Kao, **“Nitride based UV Emitters and their Applications”** 7th International Conference on Nanoscience and Nanotechnologies (NN10) (Ouranopolis Halkidiki, Greece, July 11-14, 2010)
113. R. Paiella, K. Driscoll, Y. Li, Y. Liao, A. Bhattacharyya, C. Thomidis, L. Zhou, D. J. Smith, and T. D. Moustakas, **“Intersubband Transitions in GaIn-Based Quantum Wells: a New Materials Platform for Infrared Device Applications,”** SPIE Optics and Photonics, San Diego (CA), Aug 2010
114. David J. Smith, Lin Zhou, Martha R. McCartney and T.D. Moustakas **“Structural**

- Characterization of III-Nitride Materials and Devices**” SPIE Optics and Photonics, (San Diego CA, Aug 2010)
115. T. D. Moustakas, **“The Development of Nitride Semiconductors by MBE”** The 2010 MBE Innovator Award Presentation at the 27th North American Molecular Beam Epitaxy Conference (Breckenridge, Colorado, Sept. 26-29, 2010)
 116. T. D. Moustakas **“Nitride Semiconductors and Their Applications to Solid State Lighting and water /Air Purification”** The BU College of Engineering Distinguished Scholar Award Presentation (Boston University, March 3, 2011)
 117. T. D. Moustakas, **“Experimental Evidence that the Plasma-assisted MBE growth of Nitride Alloys is a liquid Phase Epitaxy Process”**, 219 Electrochemical Society Meeting (Montreal, May 1-5, 2011)
 118. T. D. Moustakas, **“Nitride Semiconductors: Why they work in optoelectronic devices”**, 220 Electrochemical Society Meeting (Boston, Oct. 9-14, 2011)
 119. R. Paiella, J. Henson, J. DiMaria, E. Dimakis, R. Li, S. Minissale, L. Dal Negro, and T. D. Moustakas, **“Plasmon-Enhanced Near-Green Light Emission from InGaN/GaN Quantum Wells”**, 220 Electrochemical Society Meeting (Boston, Oct. 9-14, 2011)
 120. T. D. Moustakas, **“Deep UV LEDs with high IQE based on AlGaIn alloys with strong band structure potential fluctuations”**, Photonics West (January 21-26, 2012)
 121. T. D. Moustakas, **“The role of extended defects in the performance of electronic and optoelectronic devices”** Plenary Speaker: International Conference on Extended Defects in Semiconductors (Thessaloniki, Greece, June 24-29, 2012)
 122. T. D. Moustakas, **“Nitride Semiconductors and their applications in UV Optoelectronic Devices”** 16th Annual “Future of Light Symposium” (Boston University, November 29, 2012)
 123. T.D. Moustakas, **“Materials Issues for Vertical Gallium Nitride Power Devices”**, 224 Electrochemical Society Meeting (San Francisco, Oct. 28-Nov. 1, 2013)
 124. T. D. Moustakas, **“Fundamental differences between traditional III-V compounds and Nitride Semiconductors”** International Semiconductor Device Research Symposium (ISDRS 2013), Bethesda, Maryland, Dec.11-13, 2013)
 125. T. D. Moustakas, **“Nitride Semiconductors and their applications to Solid State lighting and Water/Air purification”**, Keynote Speaker: International Conference on Universal Village 2014 (UV2014), MIT, Cambridge, June 16 (2014)
 126. R. Paiella and T. D. Moustakas, **“Terahertz Nitrides Intersubband Optoelectronics”** International Workshop on Nitride Semiconductors (IWN 2014), (Wroclaw, Poland, August 24-29, 2014)
 127. T. D. Moustakas, **“Fundamental Differences between Cubic III-V Compounds and Wurtzite Nitride Semiconductors Produced by Molecular Beam Epitaxy”**, Plenary Speaker: 18th International Conference on Molecular Beam Epitaxy (Flagstaff, Arizona, September 7-12, 2014)
 128. T. D. Moustakas, **“Fundamental differences between traditional III-V compounds and Nitride Semiconductors: The formation and role of extended defects”** 18th Annual Photonics Center Symposium on Advanced Materials by Design for the 21st Century (Boston University, Dec. 4,2014)
 129. T. D. Moustakas, **“Fundamental differences between traditional III-V compounds and Nitride Semiconductors: The formation and role of extended defects”** American Vacuum Society (Boston Chapter), (Lincoln Laboratories, Dec. 4, 2014).
 130. T. D. Moustakas, **“Fundamental differences between Nitride Semiconductors and Traditional III-V compounds: the formation**

- and the role of extended defects**”, A celebratory lecture on GaN, the topic related to Nobel prize in Physics in 2014 (University of Milano-Bicocca, March 31st, 2015)
131. T. D. Moustakas, **“Fundamental differences between Nitride Semiconductors and Traditional III-V compounds”**, Plenary Speaker: NSLS-II/ CFN Users’ Meeting (Brookhaven National Laboratory, May 19, 2015)
132. T. D. Moustakas, **“Fundamental differences between Nitride Semiconductors and Traditional III-V compounds”** The 11th International Conference on Nitride Semiconductors (ICNS-11), (Beijing, China, Aug. 30-Sept. 4th, 2015)
133. T. D. Moustakas, Plenary Speaker: **“Nitride Semiconductors: Physics and Applications”** XXXI Panhellenic Conference on Solid State Physics & Materials Science, (Thessaloniki, Greece, September 20, 2015)
134. T. D. Moustakas, **“UV Optoelectronic Devices based on AlGaIn Alloys”**, IEEE Boston Photonic Society (Lincoln Laboratories, October 8, 2015)
135. T. D. Moustakas, **“Fundamental Differences Between the Traditional III-V compounds and Nitride Semiconductors”** 229 Electrochemical Society Meeting (San Diego, May 29-June 3, 2016)
136. T. D. Moustakas, **“Development of AlGaIn-based deep UV LEDs and lasers by MBE”** European MRS Meeting (Warsaw, Poland, Sept. 19-22, 2016).
137. T. D. Moustakas, Keynote Speaker: **“Development of novel deep UV LEDs and Lasers for industrial and medical applications”**, Boston Photonics Centennial Conference (Harvard University, Feb. 25, 2017)
138. T. D. Moustakas, Keynote Speaker: **“Development of deep UV LEDs for environmental and medical applications”**, 17th International Conference on Nanosciences and Nanotechnologies (Thessaloniki, Greece July 7-10, 2020)