

Massimo Catalano – Curriculum Vitae

14 Arbor dr apt LEFT

Dover, NH – USA

massimo.catalano1963@gmail.com

(469) 859-8189

Summary and research interests

- Extensive experience in the structural and chemical characterization of materials and devices by means of transmission electron microscopy, scanning transmission electron microscopy and related techniques, and on nanofabrication by focused ion mill techniques.
- Author of more than 130 publications on the structural and chemical characterization of materials and devices.
- Specimen preparation for high resolution electron microscopy, mechanical, chemical and physical polishing of materials and devices by conventional methods and by the Focused Ion Beam technique.
- Electron Energy loss spectroscopy and Energy Dispersive X-Ray Microanalysis.
- *In-situ* Transmission Electron Microscopy.
- Simulation of High-Resolution Transmission Electron Microscopy images.
- Use and development of advanced Focused Ion Beam techniques and methods, for sample preparation and nanofabrication experiments. Extensive experience in the preparation of both planar view and cross section samples both from blanket wafers and from patterned devices.

Work History

September 1, 2021 to present (current occupation):

- Collaboration with the University of Salento for the installation of the HOLOTEM microscope facility. Student training and facility planning.

January 1, 2020 – August 31, 2021: Assistant Professor at Albert Einstein College of Medicine, The Bronx, New York:

- Study of a MASER device to be used in the non-invasive diagnosis and cure of brain pathologies.

2015-2019: Research Associate, Materials Science and Engineering Dept, University of Texas at Dallas, Richardson, TX.

- Extensive experience in FIB preparation of both plan views and cross sections of several materials by using the in situ lift off method.
- Performed support activity to industry for the characterization of GaN based materials and devices at the nanoscale by using Transmission Electron Microscopy and related techniques.
- Provided transmission Electron Microscopy observations of InGaN/GaN wells on miscut substrates, in the frame of the Center for Low Energy Systems Technology (LEAST), one of six centers of STARnet, a Semiconductor Research Corporation program sponsored by MARCO and DARPA, and by the Solid State Lighting and Energy Electronics Center (SSLEEC) at the University of California, Santa Barbara. Provided full characterization of several tens of samples in order to assess the growth technique.
- Performed TEM characterization of several nanomaterials (nanocubes, nanoframes, nanotubes) and thin films
- Supported the research activities on wafer bonding by characterizing CdTe interfaces.
- Studied 2D Materials such as graphene, hexagonal boron nitride and Transition Metal Dichalcogenide (TMD) materials and provided support to the techniques for the fabrication of devices using same.

- Performed structural and compositional characterization of thin undoped and doped PolySilicon films, to study the behavior of the grain size distribution and density, the effect of doping, implantation, annealing.
- Recently working on the *in-situ* and *ex-situ* characterization of Polysilicon e-fuses, in order to study the kinetics of the blowing process.
- Recently started the study of organic and inorganic Perovskites.
- Supported TEM and Characterization classes at UTD

2007-current: On leave of absence from Senior Scientist permanent position, Italian National Council for Research, Institute for Microelectronics and Microsystems (CNR-IMM), Lecce, Italy – Responsible for the Laboratory of Structural and Chemical Characterization and Nanofabrication.

- Provided characterization support to the growth of several II-V heterostructures (ternary and quaternary alloys).
- Performed characterization of nanomaterials at the nanoscales. Mainly focuses on metal and semiconductor nanoparticles

1998-2007: Research Scientist, Institute for the Study on New Materials for Electronics of the National Council for Research in Italy (CNR-IME), Lecce, Italy

- Structural and chemical characterization of low-dimensional semiconducting materials (quantum dots, wells, wires)
- Studies materials for the fabrication of gas sensors
- Provides support for all structural characterization of materials and devices at CNR-IME

Education

1987: Master of Science in Physics, University of Lecce, Italy; *summa cum laude*; Experimental thesis on “Transmission Electron Microscopy study of extended defects in III-VI semiconductor compounds”.

The Degree obtained is considered, in Italy, to a Doctoral Degree, and allow full access to all academic positions.

Scholarships and Post-degree Work Experience

1994-1998: Young Investigator, CNR-IME, Lecce, Italy. Investigated new materials for electronics

- Responsible for the electron microscopy lab
- Provided support for the structural characterization of the materials of interest of the Institute.

1992-94: Researcher, (INFN scholarships); PASTIS – CNRSM, Brindisi, Italy

- Performed characterization of metal nanoclusters in different matrices (ORMOCER, polymers, glasses), characterized II-V semiconductors and low dimensional systems.

1991-92: Researcher Scientist at the Center for Solid State Science of Arizona State University, High Resolution Transmission Electron Microscopy Facility

- Performed characterization of several materials system by means of High Resolution Transmission Electron Microscopy and Electron Energy loss spectroscopy.
- High Resolution Transmission Electron Microscopy
- Simulation of high resolution electron microscopy
- Electron Energy Loss Spectroscopy
- Energy Dispersive X-Ray microanalysis
- Preparation of samples for electron microscopy

Studied several materials systems and in particular performed extensive research Semi Insulating Oxygen Doped Silicon (SIPOS/Si) interfaces by means of transmission electron microscopy techniques.

1990-91: National Council for Research (CNR-IME) after winning a National Competition for a 2 year scholarship and grant to work on electromagnetism and optics.

1988-90: SOFT s.r.l. Lecce: Analyst/programmer on IBM computers writing software for financial administration of banks and credit institutions.

SKILLS

- Transmission Electron Microscopy (TEM)
- Scanning Electron Microscopy (SEM)
- Scanning Transmission Electron Microscopy (STEM)
- High Resolution Transmission Electron Microscopy (HREM)
- Electron Energy Loss Spectroscopy (EELS)
- Energy Dispersive X-Ray Spectroscopy (EDS)
- Sample Preparation by the Focus Ion Beam (FIB). Preparation of plan-view and cross-sections
- *In situ* Transmission Electron Microscopy
- Structural and Analytical Characterization of Materials
- Characterization of Semiconducting Materials
- Characterization of Nanomaterials
- Characterization of TMD and 2D materials

PARTICIPATION TO NATIONAL AND INTERNATIONAL PROJECTS

1) European project: "Environmental control by means of a new gas detection principle: gas sensing by metal oxide heterojunctions (GASMOH)" , 5th framework program, project INCO Copernicus 2

01/12/ 2000 – 30/11/2003

Total budget 543.000€

Partners: Istituto Nazionale per la Fisica della Materia, INFN, Research Unit of Brescia, Italy; National Institute of Materials Physics INCDPM, Bucharest, Romania; Avangard-Microsensors, S.Petersburg, Russia; Scientific and Research Institute for Physical and Chemical Problems, RIPC Minsk, Belarus; Eberhard-Karls-Universitaet, Tübingen, Germany.

Goals: Study and fabrication of new sensors based on heterojunctions between metal oxides, for the environmental monitoring (In₂O₃, TiO₂, MoO₃, SnO₂-PdO, SnO₂-In₂O₃, TiO₂-MoO₃, In₂O₃-MoO₃)

2) MIUR Project art.6 DM 593/2000: "Enabling technologies for the fabrication of new generation transmitting and receiving microwave systems" (TASM)"

01/01/2002-31/12/2004

Total budget: 19.808.360 €

Partners: Consorzio Optel, Consorzio Nazionale di Ricerca per le Tecnologie Optoelettroniche dell'InP, Cittadella della Ricerca, Brindisi, Italy; Galileo Avionica S.p.A.; SELEX Sistemi Integrati S.p.A.; Thales Alenia Space Italia S.p.A.; Università del Salento; Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase

Goals: i) Development of technologies for the fabrication of modular and compact digital transmitters/receivers, ii) study of new materials for packaging, iii) study of back-end technologies for GaN-high power and high frequency devices HEMT devices, iv) development of new technologies for the fabrication of MEMS.

3) MIUR PON Scientific Research Project, “Development of a Laboratory for the Fabrication of sensor and advanced micro- and nano- devices based on III-V semiconductors. Time frame: 11/02/2003 – 19/09/2006

Total budget: 2.100.000 €

Partners: CNR-IMM Lecce

Goals: Set up and development of an advanced lab for the study and fabrication of materials and devices on the sub-micron and nanoscale.

4) MIUR Project “Development of new technologies for the information society: optoelectronics, nanoelectronics, and sensor technology”

01/07/2004 – 20/06/ 2006

Total budget: 1.100.000 €

Partners: CNR-IMM, sedi di Lecce, Catania e Napoli

Goals: i) study and fabrication of solid state chemical sensors, ii) Focused Ion Beam fabrication of quantum wires and quantum dots; iii) fabrication of dielectric nanomask for the selective growth of quantum dots and wires; iv) setup of a 80fs pulse laser for measurements on nanodevices and development of time resolved spectroscopic techniques for pump&probe time resolved experiments for the study of ultrafast measurements of carrier relaxation phenomena.

5) MIUR FIRB 06 Strategic program project “Hyperfrequencies” for integrated electronic systems: development of enabling technologies for large band reconfigurable electronic components”

01/04/2007- 31/12/2009

Total budget: 2.517.857 €

Partners: SELEX Sistemi Integrati; Alcatel Alenia Space; Università di Roma Tor Vergata; Università di Perugia; Università di Modena e Reggio Emilia

Goals: Development of new and competitive components for applications to sensors, telecommunication systems, wide and sensors, intelligent microsystems. In particular: i) development of technology on PHEMT/MHEMT (0.15 micron) for low noise receivers; ii) development of technology on GaN (0.15 micron) for power devices; iii) development of technology MEMS on GaAs, GaN/SiC and ceramic materials; iv) development of characterization and modelling for devices; v) methods for circuit design for the fabrication of analogic devices and MEMS.

6) MIUR POR Project “Set up of a Public-private laboratory for the development of new technologies in the fields of the production of electrical power from solar sources (SOLAR) ”

01/07/2008 – 31/12/2014

Total budget: 14.244.480 €,

Partners: Università degli Studi di Lecce - Centro Ricerche Energia e Ambiente -Dipartimento di Ingegneria dell’Innovazione;COG Srl – Lecce; Costruzioni solari Srl -Cavallino (LE); Dipartimento di Elettrotecnica ed Elettronica - Politecnico di Bari; Dipartimento di Ingegneria Industriale e Meccanica - Università degli Studi di Catania; SHAP Spa – Lecce; STC Srl – Mesagne (BR); TCT Srl – Brindisi; Turboden Srl – Lecce;

Goals: set up of a laboratory specialized in the research of innovative and competitive solutions for the production of small size plants for the production of energy from solar source: i) development of new technologies for the production, the managing and the servicing of solar concentrators; ii) production of solar thermocarrier fluids; iii) optimization of thermodynamic cycles for the ideal utilization of high temperature thermo-solar; iv) fabrication of innovative energy storage systems.

7) MIUR POR Project “Nano rectenna for the high efficiency direct conversion of light into electricity”

01/05/2009 – 30/06/2013

Total budget: 1.034.840 €

Partners: Università degli Studi di Lecce - Centro Ricerche Energia e Ambiente -Dipartimento di Ingegneria dell’Innovazione; SHAP S.p.A. Solar Heat and Power –Roma; Edil.Cos S.r.l. - Caprarica di Lecce (LE); Rizzo Costruzioni S.a.S – Salice Salentino (LE)

Goals: Design, fabrication and characterization of a prototype of an innovative device for high efficiency direct conversion of solar energy into electricity.

8) MIUR POR Project "Research and development of innovative sensors based on strain gauge of Samarium Sulphide"

01/05/2009 – 30/06/2013

Total budget: 1.079.000 €

Partners: Università degli Studi di Lecce - Dipartimento di Ingegneria dell'Innovazione; Gefran Sensori S.r.L.
- Provaglio D'Iseo (BS); IAS S.r.L. - Lecce

9) National MIUR PON "Enabling technologies for airport monitoring systems"

01/01/2011 – 31/12/2015

Total budget: 12.394.150 €

Partners: Italia S.p.A.; Università del Salento; Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase

Goals: set up of back-side processes of GaN-HEMT devices. This problem deals with the study and realization of techniques for the bonding of SiC wafers, polishing techniques, development of photolithographic process for the 100 micron via hole digging in SiC substrates; ii) development of switches and complex networks in MEMS technology; iii) development of packaging techniques for sensors.

TEACHING ACTIVITY

Gave several seminars, classes and tutorials on:

- fundamentals of transmission microscopy
- cinematic and dynamic theory of electron diffraction
- structural and chemical electron microscopy characterization techniques
- scanning electron microscopy
- focused ion beam and nanofabrication
- electron microscopy in forensic sciences
- 2000-2001: director coordinator and responsible for the teaching activities of the "Electron Microscopy: a tool for industrial quality and environment monitoring",

MASTER AND PhD THISIS MENTORING

- Tutor of the PhD Thesis "Study of the structural properties of mesoscopic systems at nanoscale", A.Taurino, 1996-1999 (for the PhD in Physics, 12th cycle)
- Tutor for the master Degree thesis "Applications of the multislice method to the simulation of high resolution electron microscopy images of InGaAs/GaAs quantum dots", E. Piscopiello, A.A. 1999/2000
- Tutor of the ISUFI PhD thesis "Systematic study of the structural properties of GaN based heterostructures" (for the PhD in Physics 15th cycle)

CONFERENCES AND BOARDS

- Member of the board of regents of the Italian society for Electron Microscopy from 1998 to 2004
- From 2002 to 2006 is vice-president of the Italian Society for Electron Microscopy.
- In 1995 organizes the international workshop "Microstructural and Microanalytical Characterization Techniques in Materials Science
- In 1998 is Scientific Director of the "Theoretical and experimental school for electron microscopy in materials science and biology".

- 1998: in the organizing committee of the international workshop “Microstructural and microanalytical characterization of semiconducting materials and devices”,
- Editor of the Micron 31 (2000) 201 special issue containing the proceedings of the Workshop “Microstructural and microanalytical characterization of semiconducting materials and devices”
- 2006: Director of the Theoretical-experimental school of scanning electron microscopy in materials science”
- 2001: president of the “5th Multinational Congress on Electron Microscopy”
- Editor of the books of Proceedings del VII Multinational Congress on Microscopy, September 20-25, 2001 Lecce, Italy, published by Rinton Press, ISBN 1-58949-003-7
- 2007 Director of the “Advanced school of scanning transmission electron microscopy in materials science”
- 2008: Director of the school “Chemical-physical analytical techniques in forensic sciences” organized by CNR-IMM and University of Salento
- From 2010 to 2012, is in the CNR-IMM board representing the researchers
- 2016: coordinator of the line of activity “Characterization” of the CNR-IMM institute

ADDITIONAL INFORMATION

- Date of Birth: November 27th, 1963
- Sex: Male
- Nationality: Italian
- Languages spoken: Italian, English, French (school level), Spanish (school level)
- In 1981 obtained the TOEFL (Teaching English as a Foreign Language)
- Built and maintained the web page of the Italian Society for Electron Microscopy
- Several jury duties as scientific expert
- Director of the Journal of the Italian Society for Electron Microscopy

CNR-IMM page: <https://www.le.imm.cnr.it/users/massimocatalano>

Google scholar page: https://scholar.google.com/citations?user=1aFSZ_wAAAAJ&hl=en

LinkedIn Profile: <https://www.linkedin.com/in/massimo-catalano-48876a69/>

PUBLICATIONS

1. C. De Blasi, G. Micocci, A. Rizzo, M. Catalano, D. Manno, "Planar Defects in InSe Single Crystals", Proceedings XVIII International Conference on the Physics of Semiconductors, Stockholm 1986, Vol. II, World Scientific, Stockholm 1987, p. 1803
2. A. Rizzo, M. Catalano, C. De Blasi, G. Micocci, "Dislocazioni e Proprieta' Elettriche in Semiconduttori del tipo III-VI", S.I.F. LXXIII Congresso Nazionale, Napoli, Ottobre 1987, p. 1917;
3. A. Rizzo, C. De Blasi, M. Catalano, e P. Cavaliere "Dislocations in III-VI Single Crystals", Phys. Stat. Sol. (a) 105, p. 101 (1988);
4. M. Catalano, M.J. Kim, R.W. Carpenter, J. Wong, "Nanoanalysis of Semiinsulating Polycrystalline Silicon by High Spatial Resolution Electron Microscopy", Proceedings 49th Annual Meeting of the Electron Microscopy Society of America, 4-9 August 1991, S. Francisco Press, p. 738;
5. M.J. Kim, M. Catalano, T.P. Sjoreen, R.W. Carpenter, "Microstructure of Silicon Implanted with MeV Gold Ions", Proceedings 49th Annual Meeting of the Electron Microscopy Society of America, 4-9 August 1991, S. Francisco Press, p. 876;
6. M. Catalano, M.J. Kim, R.W. Carpenter, J. Wong, "High Spatial Resolution Electron Microscopy Study of Semi-insulating Polycrystalline Silicon", Proceedings del XVIII Congresso della Societa' Italiana di Microscopia Elettronica, Padova, Settembre 1991, p. 211;
7. M.J. Kim, C.S. Lee, M. Catalano, K.S. Shin, "Microstructure and Properties of Al-Cu-Li-Ag-Mg-Zr Alloy", Proceedings 50th Annual Meeting of the Electron Microscopy Society of America, Boston, MA, Ed. G.W. Bailey, San Francisco Press, San Francisco, CA, p. 184 (1992) .
8. M. Catalano, M.J. Kim, R.W. Carpenter, K. Das Chowdhury and J. Wong, "The Composition and Structure of SIPOS: High Spatial Resolution Electron Microscopy", J. Mater. Research, 8 (11), p. 2893 (1993);
9. E. Carlino, M. Catalano, C. Giannini, L. Tapfer, E. Tournier, Y.-H. Zhang, and K. Ploog, "Characterization of GaIn_{1-x}As/InP and AlIn_{1-x}As/InP Heterointerfaces by Transmission Electron Microscopy", Proceedings of the Conference on "Microscopy of Semiconducting Materials", Oxford 5-8 Apr. 1993, Ins. Phys. Conf. Ser., 134, Section 1, p. 21
10. E. Carlino, M. Catalano, C. Giannini, L. Tapfer, E. Tournier, Y.-H. Zhang, and K. Ploog, "Determination of Chemical Gradients in AlIn_{1-x}As/InP Lattice Matched Heterostructures by Transmission Electron Microscopy and High Resolution X-Ray Diffraction", Proceedings of the Multinational Congress on Electron Microscopy, September 13-17, 1993, Parma, Italy, p. 139
11. M. Catalano, E. Carlino, C. Giannini, L. Tapfer, E. Tournier, Y.-H. Zhang, and K. Ploog, "High Spatial Resolution Analytical Electron Microscopy of AlIn_{1-x}As/InP Heterointerfaces", Proceedings of the Multinational Congress on Electron Microscopy, September 13-17, 1993, Parma, Italy, p. 123
12. M. Catalano, L. Tapfer, A. Licciulli, T. Burkhart, M. Mennig and H. Schmidt, "TEM Characterization of Pd Colloids in ORMOCER Matrix", Proceedings of the 13th International Congress on Electron Microscopy (ICEM 13), 17-22 July 1994, Paris, France, vol. 2A, p. 425
13. R. Bertoncello, F. Trivillin, E. Cattaruzza, P. Mazzoldi, G.W. Arnold, G. Battaglin and M. Catalano, "Chemical aspects in copper-implanted fused silica and soda-lime glasses", J. Appl. Phys. 77 (3) p. 1294, (1995)
14. E. Carlino, C. Giannini, L. Tapfer, M. Catalano, E. Tournié, Y.H. Zhang and K.H. Ploog, "Structural Characterization of Lattice Matched AlIn_{1-x}As/InP and GaIn_{1-y}As Heterostructures by Transmission Electron Microscopy and High-Resolution X-Ray Diffraction", J. Appl. Phys. 78 (4) p. 2403 (1995),
15. M. Catalano, E. Carlino, M. A. Tagliente, A. Licciulli and L. Tapfer, "Microstructural and Microanalytical Characterization of Palladium Nanoclusters in ORMOCER Matrix by Transmission Electron Microscopy and X-Ray Diffraction", Workshop "Microstructural and Microanalytical Characterization Techniques in Materials Science", Lecce 23-24 Febbraio 1995, Microscopy Microanalysis Microstructures, 5-6, p. 611, (1995)
16. M. Catalano, G. De, A. Licciulli and L. Tapfer, "Tem Characterization of Palladium and Silver nanoclusters in Glass Matrix", Il Convegno Nazionale Materiali Nanofasici, CNR, Roma, 23-24 Maggio 1995, Materials Science Forum 195 p.87-92 (1995)

17. M. Catalano, M. A. Tagliente, A. Licciulli and L. Tapfer "TEM characterization of Pd nanoclusters dispersed in amorphous matrix by modified sol-gel technique", Proceedings del XX Congresso della Societa' Italiana di Microscopia Elettronica, Rimini, 11-14 Settembre 1995, p. 381
18. M. Catalano, G. De and L. Tapfer, "TEM characterization of sol-gel derived Ag nanoclusters doped silica film", Proceedings del XX Congresso della Societa' Italiana di Microscopia Elettronica, Rimini, 11-14 Settembre 1995, p. 387
19. A. Licciulli, G. De, P. Mazzoldi, M. Catalano, L. Mirengi and L. Tapfer, "Metal nanocrystals in amorphous silica matrix by Sol-Gel process", in Advances in Crystal Growth - Materials Science Forum 203 (Transtec Publications Ed. A.M. Mancini, C. Paorici and M.L. Terranova 1996) p. 59 (1996)
20. Hong-Tao Sun, C. Cantalini, M. Faccio, M. Pelino, M. Catalano and L. Tapfer "Porous Silica-Coated α -Fe₂O₃ Ceramics for Humidity Measurement at Elevated Temperature", J. Am. Ceram. Soc., 79 (4) 927-937 (1996)
21. G.W. Arnold, G. De Marchi, F. Gonella, P. Mazzoldi, C. Meneghini, A. Quaranta, G. Battaglin, M. Catalano, F. Garrido and R.F. Haglund Jr, "Formation of nonlinear optical waveguides by using ion-exchange and implantation techniques", Int. Conference Radiation Effects in Insulators, REI 8, Catania, September 11-15 1995, Nucl. Instr. Methods B 116 p. 507 (1996)
22. G. De, A. Licciulli, C. Massaro, L. Tapfer, M. Catalano, G. Battaglin, C. Meneghini, P. Mazzoldi, "Silver nanocrystals in silica by sol-gel processing" J. of Noncryst. Solids , 194 p. 225-234 (1996)
23. G. De and L. Tapfer, M. Catalano, G. Battaglin, F. Caccavale, F. Gonella, P. Mazzoldi, R. F. Haglund Jr., "Formation of copper and silver nanometer dimension clusters in silica by the sol-gel process", Appl. Phys. Lett. 68 (26) p. 3820-3822 (1996)
24. M. Celino, F. Cleri, G. D'Agostino, V. Rosato, M. Catalano, E. Carlino, M. A. Tagliente, A. Licciulli, L. Tapfer, "Oxidation mechanism in small metallic particles", Proc. of ISMANAM 1996, CNR, Roma, 20-24 May 1996 , P-B-10
25. M. Catalano, E. Carlino, G. De, L. Tapfer, F. Gonella, P. Mazzoldi and G. Battaglin, "Structure and chemistry of Ag - Cu nanoclusters in silica matrix by the sol-gel process", Proc. of 3rd International Workshop on Metastable Phases, Bologna 9-11 April 1996, Phil. Mag. B, 76 (4) p. 621
26. M. Catalano, G. De, E. Carlino and L. Tapfer, Proc. EUREM 1996, Dublin (Ireland), 26-30 August 1996
27. G. De, M. Gusso, L. Tapfer, M. Catalano, F. Gonella, G. Mattei, P. Mazzoldi and G. Battaglin, "Annealing behavior of silver, copper and silver copper nanoclusters in silica matrix synthesized by the sol-gel technique", J. Appl. Phys. 80 (12), 15 Dec 1996, p.6734 (1996)
28. M. Catalano, R. Rella, P. Siciliano, L. Vasanelli, G. De and A. Licciulli, "Preparation and characterization of sol-gel derived Tin Oxide based gas sensors", Proc. 2nd Italian Conf. On Sensors and Microsystems, Rome (Italy), 3-5 Feb, 1997, World Scientific (1997), p. 165-169
29. M. Catalano, A. Taurino, A. Passaseo, R. Rinaldi and R. Cingolani, "Caratterizzazione strutturale ed ottica di multi quantum wires di GaAs/InGaAs cresciuti mediante MOVPE su substrati non planari", Proc. XXI Congresso della Società Italiana di Microscopia Elettronica, Taormina (Italy), 19-23 Oct 1997
30. R. Cingolani, F. Sogawa, Y. Arakawa, R. Rinaldi, M. De Vittorio, A. Passaseo, A. Taurino, M. Catalano and L. Vasanelli, "Microphotoluminescence spectroscopy of vertically stacked InGaAs/GaAs quantum wires", Phys. Rev. B, (1998) 58 (3), p.1962-1966
31. A. Passaseo, R. Rinaldi, M. De Giorgi, R. Cingolani, M. Catalano, A. Taurino, "Fabrication and characterization of strained InGaAs quantum wires grown on high index V-grooved GaAs substrates by LP-MOVPE", Proc. of Urgada C Superlattices and Microstructures, 25 (1999) 481-485
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33. M. Lomascolo, R. Rinaldi, A. Passaseo, M. De Vittorio, M. De Giorgi, R. Cingolani, L. De Caro, L. Tapfer, A. Taurino, M. Catalano, "Time resolved screening of the piezoelectric field in InGaAs/GaAs V-shaped quantum wires of variable profile", Superlattices and Microstructures 25 (1/2) (1999) 235-238
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36. A. Taurino, M. Catalano, L. Vasanelli, E. Carlino, A. Passaseo, R. Cingolani, "TEM observation of InGaAs/GaAs quantum wires grown on V-grooved substrates", *INFMeeting, Rimini 25-30 Giugno 1998*
37. M. L. Curri, G. Ventruti, V. Spagnolo, L. Chiavarone, M. Catalano, A. Agostiano, M. Della Monica, M. Lugarà, M. Ferrara, I. M. Catalano, L. Vasanelli "Characterization of CdS nanoparticles prepared in a quaternary microemulsion" *INFMeeting, Rimini 25-30 Giugno 1998*
38. A. Agostiano, M. Catalano, M. L. Curri, M. Della Monica, L. Manna, L. Vasanelli "Synthesis and structural characterisation of CdS nanoparticles prepared in a four components "water-in-oil" microemulsion " *Proc. of workshop "Microstructural and Microanalytical characterization of semiconductor materials and devices" editors A. Armigliato, M. Catalano, E. Carlino, Lecce, Micron (2000), vol. 31 (3), p.253-258*
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40. M. De Vittorio, R. Rinaldi, M. De Giorgi, M. Lomascolo, P. Visconti, R. Cingolani, A. Taurino, M. Catalano, L. De Caro, L. Tapfer, "Recombination in InGaAs/GaAs quantum wire lasers", *Solid State Comm.* 112 (1999), 55-60
41. A. Taurino, M. Catalano, L. Vasanelli, A. Passaseo, R. Rinaldi, R. Cingolani "Role of the substrate on the growth of single and stacked InGaAs/GaAs Quantum Dots" *Proc. IV Multinational congress on Electron Microscopy, 5-8 Set, 1999 Veszprem (Hungary), p. 371*
42. T. Someya, R. Werner, A. Forchel, M. Catalano, R. Cingolani, Y. Arakawa, "Room Temperature Lasing at Blue Wavelengths in Gallium Nitride Microcavities", *Science*, September 17 (1999), p. 1905
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