

Curriculum Vitae

NAME:

MASSIMO CAZZANELLI

ANAGRAPHICAL INFORMATIONS:

Nationality : Italian

Place of birth : Levico Terme (TN)

Date of birth: 10 February 1972

Anagraphical residence : Novaledo (TN)

AFFILIATION AND OFFICIAL ADDRESSES

At work:

Dipartimento di Fisica - Università di Trento

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MEMBERSHIP OF PROFESSIONAL SOCIETIES:

Istituto Nazionale di Fisica della Materia (categoria TL classe B1)

EDUCATION:

July 1996:

"Laurea" in Physics (106/110 points)

Università di Trento, Povo (TN)

Thesis Argument: "Spettroscopia Ottica Veloce: applicazione a Microcavità di Silicio Poroso e alla luminescenza calda in GaAs".

Supervisor: prof. Lorenzo Pavesi

October/December 1996

Three months research grant of INFM on "Misure risolte in tempo su microcavità di silicio Poroso".

January/November 1997

I followed and passed the final examination of the first year of Scuola di Specializzazione in Scienza e Tecnologia dei Materiali presso il Dipartimento di Scienza dei Materiali dell'Università degli Studi di Milano under the supervision of Prof. Mario Guzzi.

September 1997/October 1998:

M. Sc. in Physics

Trinity College-University of Dublin

Dublin 2-Ireland

Thesis Argument: "Pulsed laser deposition and characterization of gallium nitride thin films".

Supervisor: Dr. James G. Lunney

October 1998/December 1999:

I worked on a quantum optics research activity (as research assistant) at the Physics Department of the University of Geneva under the supervision of Prof. Nicolas Gisin.

Starting from January 4th 2000 I am working as research technician at the Dipartimento di Fisica dell'Università di Trento

November 2000/December 2003:

Ph. D. in Physics

Dipartimento di Fisica-Università degli Studi di Trento

Povo-Trento

Thesis Title: "Nonlinear optical properties of silicon nanocrystals".

Supervisor: prof. Lorenzo Pavesi

Languages:

Italian mother tongue.

English spoken and written at a good level.

French spoken at a good level and written at an elementary level.
Elements of German (studied at the primary school)

CAREER/EMPLOYMENT:

Seasonal Works (1987-1996):

Waiter
Receptionist
Barman

Research Works:

As summarized above, I graduated with an experimental thesis which title was "Spettroscopia Ottica Veloce: applicazione a Microcavità di Silicio Poroso e alla luminescenza calda in GaAs" under the supervision of prof. Lorenzo Pavesi of the Dipartimento di Fisica dell' Università di Trento.

The aim of the thesis was the installation and the use of a time-resolved photoluminescence facility based on a mode-locked Ti:sapphire based laser source and a streak-camera based detection system. The measurements I did with the installed system were time-resolved studies on Porous Silicon Microcavities and studies on the hot luminescence on GaAs:C.

After the thesis I did a three month (Oct. '96-Dec. '96) research stage with a grant of the "Istituto Nazionale per la Fisica della Materia (INFM)" at Unita' di Ricerca INFM of Dipartimento di Fisica dell' Università degli Studi di Trento on a research topic concerning the (experimental) physics of optical microcavities of porous silicon.

On January 1st 1997, I obtained a studentship from C.N.R. and Comune di Trento on the title "Vetri per applicazioni ottiche lineari e non lineari: preparazione e caratterizzazione tramite tecniche di spettroscopia ottica".

On January 15th 1997 I obtained a scholarship from University of Milan to follow the graduate school "Scuola di Specializzazione in Scienza e Tecnologia dei Materiali" and I followed it until October 1997. The related research activity concerned the time-resolved optical characterization of quantum wells grown on novel index surfaces (in particular on (1,1,1) surface), and was done under the supervision of prof. Mario Guzzi and in collaboration with prof. Lorenzo Pavesi.

Starting from November 1997 until October 1998 I worked as graduate student in the Department of Physics of Trinity College of Dublin on a research theme of Pulsed Laser Deposition and optical characterization of nitrides thin films under the supervision of Dr. James G. Lunney.

Starting from September 1998 until December 1999 I worked as research-assistant at Université de Geneve, on an experimental activity concerning quantum optics (two-photon interference experiments) under the supervision of Prof. Nicolas Gisin.

Starting from 4th January 2000 I am working as research technician and Ph.D. student in the Optical Spectroscopy group of the Dipartimento di Fisica

dell'Università di Trento on a research activity concerning the optical spectroscopy of semiconductors.

In the scientific working activities I learned how to:

- Align and use Mode locked and CW Titanium-Sapphire Lasers for time resolved photoluminescence measurements.
- Use and align SHG (second harmonic generators) and pulse-pickers.
- Use conventional light detectors (phototubes, semiconductor detectors, Optical Multichannel Analyzers (OMA)) and also streak cameras.
- Use and align monochromators (single and double grating).
- Use conventional CW and pulsed Lasers (Argon and Nd:YAG).
- Use pumping and cryogenics systems (rotary pumps, diffusion pumps, turbomolecular pumps, helium and nitrogen cryostats).
- Use and align reflectivity and transmission systems.
- Use conventional applicative packages for data analysis.
- Perform electrochemical etchings, in particular to produce porous silicon layers or multilayers.
- Perform excimer-laser ablation of solid materials (in particular of GaN) for the deposition of thin films on various substrates.
- Use conventional X-ray diffractometers for structural characterization of epitaxial thin films
- Perform simple electrical measurements on epitaxial semiconductor thin films, to characterize their resistivity, Hall mobility and doping density.
- Perform atomic force microscopy (at room temperature) on epitaxial thin films with conventional microscopes.
- Build two-photon sources (parametric down-converted photons).
- Characterize and use infrared (1200-1600 nm) photon counters based on III-V semiconductor avalanche photodiodes.
- Use high power Nd:YAG Lasers and high power optical parametric oscillators (I followed a factory training in **SPECTRA PHYSICS** plants on the use of high power optical parametric oscillators).
- To manage the burocratical procedures to order scientific material for the laboratory (quotations, orders, etc.)

RESEARCH INTERESTS:

Optical spectroscopy of semiconductors (in particular silicon).

I participate as research technician (RAMSES-INFM, SMOG-INFM, SINERGIA-EC, COFIN00 & COFIN01 etc.) of scientific projects financed on the research line on the physics of semiconductors of the optical spectroscopy laboratory of the University of Trento.

SCIENTIFIC PUBLICATIONS (in refereed journals)

1. L.Pavesi, C. Mazzoleni, R. Guardini, **M. Cazzanelli**, V. Pellegrini and A. Tredicucci "Porous Silicon Microcavities" *Il Nuovo Cimento*, 18D 1213 (1996).
2. L.Pavesi, **M. Cazzanelli** and O.Bisi "Enhancement of the spontaneous emission rates in all Porous Silicon optical Microcavities", *Advances in Microcrystalline and Nanocrystalline Semiconductors-1996*, ed. P.M. Fauchet, R.W. Collins, P.A. Alivisatos, I. Shimizu, T. Shimada, J.C. Vial, *Materials Research Society Symposium Proceedings* vol. 452, 717 (1997).
3. **M. Cazzanelli** and L. Pavesi, "Time resolved photoluminescence of all porous silicon microcavities", *Phys. Rev. B* 56, 15264 (1997).
4. **M. Cazzanelli**, L. Pavesi, O. Bisi, P. Dubos, P. Bellutti, G. Soncini, G. Faglia, G. Sberveglieri, "On the route towards efficient light emitting diodes based on porous Silicon" in: *Light emission from Silicon*, Ed. Aldo Ferrari, *Solid State Phenomena* 54, 27 (1997), TRANS TECH PUBLICATIONS.
5. A.Misiuk, G. P. Karwasz, **M. Cazzanelli**, W. Jung, L. Pavesi, "Effect of annealing under uniform stress on photoluminescence, electrical and structural properties of silicon" *Mat. Res. Soc. Symp. Proc.* 469, 245 (1997).
6. **M. Cazzanelli**, D.Cole, J. F. Donegan, J. G. Lunney, P.G. Middleton, K. P. O'Donnell, C. Vinegoni, L.Pavesi, "Photoluminescence of localized excitons in pulsed-laser-deposited GaN" *Appl. Phys. Lett.* 73, 3390 (1998).
7. **M. Cazzanelli**, C. Vinegoni and L. Pavesi, "Temperature dependence of the photoluminescence of all porous silicon optical microcavities" *J. Appl. Phys.* 85, 1760 (1999).
8. K.P. O'Donnell, P.G. Middleton, C. Trager-Cowan, D.Cole, **M. Cazzanelli**, J.G. Lunney, "The emission spectrum of pulsed laser deposited GaN and its precursor powder", *Mat. Sci & Eng. B59*, 133 (1999).
9. **M. Cazzanelli**, D. Cole, J. F. Donegan and J. G. Lunney, "Pulsed Laser Deposition of GaN thin films", *Mat. Sci. Eng. B59*, 98 (1999).
10. **M. Cazzanelli**, C. Vinegoni, D.Cole, J. G. Lunney, K. P. O'Donnell, P.G. Middleton, C. Trager-Cowan, L.Pavesi, "Luminescent properties of GaN thin films prepared by pulsed laser deposition", *Mat. Sci. Eng. B59*, 137 (1999).
11. C. Vinegoni, **M. Cazzanelli**, A. Trivelli, G. Mariotto, J. G. Lunney and J. Levy, "Morphological and optical characterization of GaN prepared by pulsed laser deposition" *Surf. & Coat. Tech.* 124, 272 (2000).
12. L. Pavesi, G. Pucker, Z. Gaburro, **M. Cazzanelli**, and P. Bellutti, "Visible light emission from a new material system: Si/SiO₂ superlattices in optical microcavities", **FRONTIERS OF NANO-OPTOELECTRONIC SYSTEMS: MOLECULAR-SCALE ENGINEERING AND PROCESSES**, Eds. L. Pavesi and E. V. Buzaneva, 121-136 (Kluwer Academic Publishers 2000).
13. G. Pucker, P. Bellutti, C. Spinella, K. Gatterer, **M. Cazzanelli**, and L. Pavesi, "Room temperature luminescence from (Si/SiO₂)_n (n = 1,2,3) multilayers grown in an industrial low pressure-chemical vapour deposition reactor", *Journ. Appl. Phys.* 88, 6044 (2000).

14. C. Vinegoni, **M. Cazzanelli** and L. Pavesi, "Porous silicon microcavities", **SILICON-BASED MATERIALS AND DEVICES VOL. 2: PROPERTIES AND DEVICES**, ed. by H. S. Nalwa, 123-192 (Academic Press 2001). **Book chapter.**
15. G. Pucker, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, "(Si/SiO₂)_n multilayers and microcavities for LED applications", *Opt. Mater.* 14, 27 (2001).
16. L. Pavesi, L. DalNegro, **M. Cazzanelli**, G. Pucker, Z. Gaburro, G. Prakash, G. Franzò, F. Priolo, "Optical gain in silicon nanocrystals", *Proc. SPIE* 4293, 162 (2001). **Invited paper.**
17. G. Vijaya Prakash, N. Daldosso, G. Pucker, **M. Cazzanelli**, F. Rocca, Z. Gaburro, P. Dalba, L. Pavesi, F. Iacona, E. Ceretta Moreira, D. Pacifici, G. Franzo' , F. Priolo, E. Degoli, S. Ossicini, "Structural and optical properties of PECVD grown silicon nanocrystals", *J. Nanosci. Nanotech.* 1, 159 (2001).
18. F. Giorgis, S. Ferrero, P. Mandracci, C. F. Pirri, **M. Cazzanelli**, and L. Pavesi, "Modified spontaneous emission in amorphous silicon-nitride based optical microcavities", *Mat. Res. Soc. Symp. Proc.* 637, E2.7.1-6 (2001).
19. G. Vijaya Prakash, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Iacona, G. Franzò and F. Priolo, "Linear and nonlinear optical properties of PECVD grown Silicon nanocrystals", *Journ. Mod. Opt.* 49, 719 (2002).
20. L. Pavesi, Z. Gaburro, L. Dal Negro, P. Bettotti, G. Vijaya Prakash, **M. Cazzanelli**, C. J. Oton, "Nanostructured silicon as a photonic material", *Opt. Las. Engin.* 38/4, 81-104 (2003). **Invited paper.**
21. P. Bettotti, **M. Cazzanelli**, L. Dal Negro, B. Danese, Z. Gaburro, C. J. Oton, G. Vijaya Prakash, L. Pavesi, "Silicon nanostructures for photonics", *J. Phys. Cond. Matter.* 14, 1-29 (2002).
22. G. Vijaya Prakash, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Iacona, G. Franzò and F. Priolo, "Nonlinear optical properties of silicon nanocrystals grown by plasma enhanced chemical vapour deposition", *Journ. Appl. Phys.* 91, 4607 (2002).
23. G. Vijaya Prakash, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Iacona, G. Franzò and F. Priolo, "Nonlinear optical properties of plasma enhanced chemical vapor deposition grown silicon nanocrystals", *Mat. Res. Soc. Symp. Proc.* 722, K8.3.1-4 (2002).
24. L. Dal Negro, Z. Gaburro, **M. Cazzanelli**, L. Pavesi, D. Pacifici, F. Iacona, G. Franzò, F. Priolo, "Optical gain in PE-CVD silicon quantum dots", *Proc. SPIE* 4808, 13 (2002). **Invited paper.**
25. L. Pavesi, P. Bettotti, **M. Cazzanelli**, S. Cella, N. Daldosso, L. Dal Negro, B. Danese, Z. Gaburro, C. J. Oton, L. Pancheri, G. Vijaya Prakash, "Silicon nanostructures for photonics" International Semiconductor Conference, 2002. CAS 2002 Symposium Proceedings pag. 103-112 (IEEE 2002).
26. C. Garcia, B. Garrido, P. Pellegrino, R. Ferre, J.A. Moreno and J.R. Morante, L. Pavesi, **M. Cazzanelli**, "Size dependance of lifetime and absorption cross-sections of Si nanocrystals embedded in SiO₂" *Appl. Phys. Lett.* 82, 1595 (2003).
27. L. Dal Negro, **M. Cazzanelli**, N. Daldosso, Z. Gaburro, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici and F. Iacona, "Optical gain and stimulated emission in silicon nanocrystals", *Mat. Res. Soc. Symp. Proc.* 738, G8.8.1-6 (2003).
28. C. Garcia, B. Garrido, P. Pellegrino, R. Ferre, L. Pavesi, **M. Cazzanelli** and J.R. Morante, "Absorption cross-sections and lifetimes as a function of size in Si nanocrystals embedded in silicates", *Physica E.* 16, 429 (2003).
29. L. Dal Negro, **M. Cazzanelli**, N. Daldosso, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici and F. Iacona, "Stimulated emission in plasma-enhanced chemical vapour deposited silicon nanocrystals", *Physica E* 16, 297 (2003).

30. Z. Gaburro, C. J. Otòn, P. Bettotti, L. Dal Negro, G. Vijaya Prakash, **M. Cazzanelli**, L. Pavesi, "Interferometric method for monitoring electrochemical etching of thin films", Journ. Electrochem. Soc. 150, C381 (2003)
31. L. Dal Negro, **M. Cazzanelli**, Z. Gaburro, P. Bettotti, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici, F. Iacona, "Stimulated emission in silicon nanocrystals", **TOWARDS THE FIRST SILICON LASER** ed. By L. Pavesi, S. Gaponenko, L. Dal Negro, pp. 145-164, NATO Science Series (KLUWER ACADEMIC PUBLISHERS, Dordrecht 2003).
32. L. Dal Negro, **M. Cazzanelli**, N. Daldosso, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici, and F. Iacona, "Time resolved gain dynamics in Silicon nanocrystals", Mat. Res. Soc. Symp. Proc. 770, I3.4.1-6 (2003).
33. L. Pavesi, L. Dal Negro, N. Daldosso, Z. Gaburro, **M. Cazzanelli**, F. Iacona, G. Franzò, D. Pacifici, F. Priolo, S. Ossicini, M. Luppi and E. Degoli, "Will silicon be the photonics material of the third millennium?" Inst. Phys. Conf. Ser. 171, 261 (2003). **Invited paper** presented at 26th Int. Conf. Physics of Semiconductors, Edinburgh, 2002.
34. L. Dal Negro, **M. Cazzanelli**, L. Pavesi, S. Ossicini, D. Pacifici, G. Franzò, F. Priolo and F. Iacona, "Dynamics of stimulated emission in silicon nanocrystals" Appl. Phys. Lett. 82, 4636 (2003).
35. L. Dal Negro, P. Bettotti, **M. Cazzanelli**, L. Pavesi, D. Pacifici "Applicability conditions and experimental analysis of the variable stripe length method for gain measurements", Opt. Comm. 229/1-6, 337-348 (2004).
36. J. Ruan, P. M. Fauchet, L. Dal Negro, **M. Cazzanelli**, L. Pavesi, "Stimulated emission in nanocrystalline silicon superlattices", accepted for publication in Appl. Phys. Lett.
37. N. Daldosso, P. Bettotti, **M. Cazzanelli**, Z. Gaburro, M. Ghulynian, M. Melchiorri, D. Navarro, F. Riboli, F. Sbrana, and L. Pavesi, "On the Route Towards a Monolithically Integrated Silicon Photonics" Proceedings of International Conference on Communication, Devices and Intelligent Systems (CODIS 2004) 8-10 jan, 2004, Kolkata, India.
38. In preparation. Zacharias JAP
39. In preparation. P&P PRB
40. In preparation. Kovalev PRL
41. In preparation. Kovalev PRB
42. In preparation. Luteròva abstr. PSST '04
43. In preparation. Ivanda
44. In preparation. Kovalev extended abstr. PSST '04
45. In preparation. GAIN GENERAL abstr. EMRS '04
46. In preparation. BLUE GAIN abstr. EMRS '04
47. In preparation. BLUE GAIN abstr. SPIE '04

SCIENTIFIC PUBLICATIONS (in journals without refereeing)

1. **M. Cazzanelli**, D. Cole and J. G. Lunney, "Pulsed laser deposition of gallium nitride", Europhys. Conf. Abst. 22H, 464 (1998).
2. L. Pavesi, L. Dal Negro, **M. Cazzanelli**, C. Mazzoleni, Z. Gaburro, F. Priolo, G. Franzò, D. Pacifici, A. Irrera and F. Iacona, "Optical gain in Si nanocrystals", Highlights INFM 2000/2001, 72-74 (2002). **Invited paper**.

ORIGINAL WORKS (unpublished)

Laurea (B.Sc.) thesis. Università di Trento 1996.

Master of Science (M.Sc.) thesis. Trinity College of Dublin, Ireland. 1998.

Dottorato in Fisica (Ph.D.) thesis. Università di Trento. 2003.

ORAL CONTRIBUTIONS AND POSTERS TO CONFERENCES (presenting author is marked with *)

1. Enhancement of the spontaneous emission rates in all porous silicon microcavities, Olmes Bisi*, Lorenzo Pavesi, Alessandro Tredicucci, and **Massimo Cazzanelli**. Oral contribution to MRS (Materials Research Society) Fall Meeting 1996, Boston-USA.
2. Coauthor in an oral contribution to National Meeting on Light Emission from Silicon INSEL ' 95, Torino-Italy.
3. Enhancement of the spontaneous emission rates in all porous silicon optical microcavities, L. Pavesi, **M. Cazzanelli***, and O. Bisi, Poster presentation to National Meeting SeIs ' 97 (Semiconduttori-Isolanti) 27 to 31 January 1997), Trento-Italy.
4. Time resolved photoluminescence of all porous silicon optical microcavities, **M. Cazzanelli***, L. Pavesi. Poster presentation to 5th National Meeting on Light emission from Silicon INSEL ' 97, Modena-Italy 1997.
5. The emission spectrum of Pulsed Laser Deposited GaN and its powder precursor, K. P. O' Donnell*, P. G. Middleton, C. Trager-Cowan, D. Cole, **M. Cazzanelli**, and J G Lunney. Poster presentation to Symposium L (Nitrides) of 1998 EMRS Conference, Strasbourg-France.
6. Pulsed Laser Deposition of GaN thin films. **Massimo Cazzanelli***, Duncan Cole, John F. Donegan and James G. Lunney, Department of Physics, Trinity College, Dublin 2, Ireland. Poster presentation to Symposium L (Nitrides) of 1998 EMRS Conference, Strasbourg-France.
7. Luminescent properties of GaN thin films prepared by Pulsed Laser Deposition **M. Cazzanelli***, D. Cole and J. G. Lunney, Trinity College, Dublin 2 Ireland. K. P. O' Donnell, P. G. Middleton, C. Trager-Cowan, University of Strathclyde, Scotland. C. Vinegoni and L. Pavesi, INFN and Dipartimento di Fisica, Università di Trento, Povo (TN), Italy. Poster presentation to Symposium L (Nitrides) of 1998 EMRS Conference, Strasbourg-France.
8. Luminescence of PLD GaN and its precursor powder, K.P O' Donnell*, P.G. Middleton, C. Trager-cowan, D. Cole, **M. Cazzanelli**, J. G. Lunney, Oral presentation to CLEO/Europe ' 98, September 1998, Glasgow-UK.
9. Pulsed laser deposition of gallium nitride, **M. Cazzanelli**, D. Cole, J.G. Lunney*, Poster presentation to XIVth ESCAMPIG, Europhysics Conference on Atomic & Molecular Physics of Ionized Gases, 26-29 August 1998, Malahide, Dublin, Ireland.
10. Morphological and optical characterization of GaN prepared by pulsed laser ablation, A. Trivelli*, **M. Cazzanelli**, C. Vinegoni, J.G. Lunney and J. Levy. Centennial Meeting APS (American Physical Society) 1999 Meeting, Atlanta-USA.
11. Two-photon interferometric measurement of the chromatic dispersion of short telecom fibers, **M. Cazzanelli**, J. Brendel, H. Zbinden*, and N. Gisin, PPO II (Projet Prioritaire Optique II) Meeting 1999, Neuchâtel, Switzerland.
12. Pulsed laser deposition of gallium nitride, J.G. Lunney*, D. Cole, **M. Cazzanelli**, C. Vinegoni and J. Castro. The First UK Nitrides Consortium, 24th September 1999, Kelvin Conference Center, Glasgow-UK .

13. G. Pucker*, P. Bellutti, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, $(\text{Si}/\text{SiO}_2)_n$ multilayers and microcavities for LED applications, presented at Symposium G of E-MRS 2000 – Strasbourg.
14. L. Pavesi*, G. Pucker, P. Bellutti, M. Cazzanelli, L. Dal Negro, Z. Gaburro, Visible Light Emission from New Systems: Si/SiO₂ Superlattices in Optical Microcavities, NATO ARW, Kiev 2000.
15. F. Giorgis*, S. Ferrero, P. Mandracci, C. F. Pirri, **M. Cazzanelli** and L. Pavesi, Modified spontaneous emission in amorphous silicon-nitride based optical microcavities, MRS Fall Meeting 2000, Boston-Massachusetts, USA.
16. Z. Gaburro, N. Daldosso, C. Otòn, P. Bettotti, L. Dal Negro, **M. Cazzanelli**, V.J. Prakash and L. Pavesi, Porous silicon microcavities as multiparametric gas sensors, INFMeeting Roma 18-22 June 2001.
17. G. Vijaya Prakash*, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Iacona and F. Priolo, “Linear and nonlinear optical properties of PECVD grown Silicon nanocrystals”, Quantum Electronics and Photonics (QEP 15) held in Glasgow (UK) from 02 sept. to 06 sept.2001.
18. Luca Dal Negro*, Zeno Gaburro, **Massimo Cazzanelli**, Lorenzo Pavesi, Domenico Pacifici, Fabio Iacona, Giorgia Franzò, Francesco Priolo, “Optical gain in PE-CVD silicon quantum dots”, SPIE’s 47th Annual Meeting Conference AM209 Seattle, July 2002.
19. L. Dal Negro*, **M. Cazzanelli**, N. Daldosso, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici and F. Iacona, OPTICAL GAIN IN SILICON NANOCRYSTALS, EMRS 2002 – Symposium H, 18-21st June 2002, Strasbourg. **Invited.**
20. G. V. Prakash*, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Iacona, G. Franzò and F. Priolo “Third order optical nonlinearities in Silicon nanocrystals”, SILICON WORKSHOP February, 6 - 8 2002 - INFM Sede, Genova.
21. L. Dal Negro*, D. Pacifici, Z. Gaburro, **M. Cazzanelli**, L. Pavesi, F. Iacona, G. Franzò, and F. Priolo “Visible and 1.54 μm light amplification in PE-CVD silicon nanocrystals”, SILICON WORKSHOP February, 6 - 8 2002 - INFM Sede, Genova.
22. C. Garcia*, B. Garrido, P. Pellegrino, R. Ferrè, L. Pavesi, **M. Cazzanelli** and J.R. Morante, “ABSORPTION CROSS-SECTIONS AND LIFETIMES AS A FUNCTION OF SIZE IN SI NANOCRYSTALS EMBEDDED IN SILICATES”, EMRS 2002 – Symposium H, 18-21st June 2002, Strasbourg.
23. G. Vijaya Prakash, **M. Cazzanelli**, Z. Gaburro*, L. Pavesi, F. Iacona, G. Franzò and F. Priolo, 2002 MRS Spring Meeting, S. Francisco, California (USA).
24. L. Dal Negro, **M. Cazzanelli**, Z. Gaburro, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici, F. Iacona Optical gain in silicon nanocrystals, SPIE’s International Symposium on Optical Science and Technology, 7-11 July 2002, Seattle, Washington (USA). **Invited.**
25. L. Dal Negro*, **M. Cazzanelli**, N. Daldosso, Z. Gaburro, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici, F. Iacona, “Optical gain and stimulated emission in silicon nanocrystals” 2002 MRS Fall Meeting, 2-6 December 2002, Boston, Massachusetts (USA).
26. L. Pavesi*, P. Bettotti, **M. Cazzanelli**, S. Cella, N. Daldosso, L. Dal Negro, B. Danese, Z. Gaburro, C. J. Oton, L. Pancheri, G. Vijaya Prakash, “Silicon nanostructures for photonics” CAS 2002 International Semiconductor Conference, 25th edition 8-12 October 2002, Sinaia, Romania.
27. L. Dal Negro*, **M. Cazzanelli**, N. Daldosso, L. Pavesi, F. Priolo, G. Franzò, D. Pacifici, F. Iacona, “TIME-RESOLVED GAIN DYNAMICS IN SILICON NANOCRYSTALS.”, Mat. Res. Soc. Symp. Proc., S. Francisco Spring 2003.

28. Jinhao Ruan*, P.M. Fauchet L. Dal Negro, **M. Cazzanelli**, L. Pavesi, "Stimulated Emission in Nanocrystalline Silicon Superlattices", 2003 MRS Spring Meeting, April 21 -25, S.Francisco, CA, USA. **Invited.**
29. C. Garcia*, B. Garrido, P. Pellegrino, R. Ferre, J.R. Morante, L. Pavesi, **M. Cazzanelli**, "Absorption cross-sections and lifetimes as a function of size in si nanocrystals embedded in Silicates", Symposium H Si-based Optoelectronics: Advances and Future Perspectives, European Materials Research Society, Spring Meeting, Strasbourg (France), June 18-21, 2002.
30. **M. Cazzanelli***, D. Kovalev, Z. Gaburro, and L. Pavesi, "OPTICAL GAIN IN STRONGLY OXIDIZED POROUS SILICON", 4th PSST 2004, Valencia 14-19 March 2004.
31. K. Luterovà*, **M. Cazzanelli**, D. Navarro-Urriòs, T. Ostatnicky, J. Valenta, I. Pelant and L. Pavesi, "STIMULATED EMISSION IN THE ACTIVE PLANAR OPTICAL WAVEGUIDE MADE OF SILICON NANOCRYSTALS", 4th PSST 2004, Valencia 14-19 March 2004.
32. ZENO GABURRO*, CLAUDIO J. OTON, MHER GHULINYAN, LUCIO PANCHERI, FRANCESCO RIBOLI, DANIEL NAVARRO, FRANCESCA SBRANA, **MASSIMO CAZZANELLI**, MASSIMO SAIANI, LORENZO PAVESI, "ROLE OF MICROSTRUCTURE AND LAYER THICKNESS IN POROUS SILICON CONDUCTIONMETRIC GAS SENSORS", Si-Workshop INFM, Genova 2004.
33. **M. Cazzanelli***, D. Navarro-Urrios, Z. Gaburro, N. Daldosso, F. Riboli, and L. Pavesi, "OPTICAL GAIN IN SILICON NANOCRYSTALS GROWN BY DIFFERENT TECHNIQUES", Si-Workshop INFM, Genova 2004.

STUDENT AWARDS

Recipient of the Graduate Student Award for the best paper presented at symposium L, E-MRS (European-Materials Research Society) 1998, Strasbourg-France, 16-19 June 1998.

ORGANIZATION OF SCIENTIFIC EVENTS

Member of the "Local organizing committee" for the OPTOELECTRONICS & PHOTONICS WINTER SCHOOL "Micro-optoelectronics: Materials, Devices and Integration" held in Trento (Sardagna) on 4-11th March 2001.

OTHER ACTIVITIES

I am referee for the Journal of Applied Physics and Applied Physics Letters (published by the American Institute of Physics) and Journ. Lumin. (published by Elsevier).

Town Councillor (in the public administration of Levico Terme) in the past legislature (from November 1995 to November 1997).

Town Councillor (in the public administration of Levico Terme) in this legislature: 2000-2005.

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