

GENERALITIES

Place and date of birth	Padova, 12 aprile 1964.
E-mail	alberto.quaranta@unitn.it
Citizenship	Italian

CURSUS STUDIORUM

1982	Classical High School Diploma.
22 marzo 1989	Physics Master degree at Padua University.
1993	PhD degree in Physics at the Physics Department of Padua University. Thesis: "Study of the diffusion process of metal ions in glasses for integrated optics".
1992-1994	Scholarship at the INFN Padua section, Physics Department.
1995	Post-doc position in the field of Physical Sciences at Padua University.

ACADEMIC POSITIONS

July 1995- Sept 2006	Assistant Professor at Engineering Faculty, University of Trento, in the scientific area B03X (Matter Structure), then FIS/03 (Physics of Matter).
Sept 2006 – Feb 2016	Associate Professor at the Engineering Faculty and the at the Industrial Engineering Department of Trento University in the scientific area FIS/01 (Experimental Physics).
Feb 2016 to present	Full Professor at the Industrial Engineering Department of Trento University in the scientific area FIS/01 (Experimental Physics), sector 02/B1 (Experimental Materials Physics)

TEACHING ACTIVITIES

Between 1992 and 1995 Alberto Quaranta held lectures for the Engineering and Physics Laboratory courses of Padua University.

Since 1995 he is teacher of the Engineering Faculty and then of the Industrial Engineering Department of Trento University.

He was teacher of the courses: *Physics 3* (wave and optics), *Physics 2* (electromagnetism, wave and optics), *Physics for the Viticulture and Enology Inter-academic Course*, *Solid State Physics e Surface Physics*. Moreover, he gave lectures for the course of *Materials Characterizations and Physics Laboratory*.

At present he is teacher of the courses *Physics 2* (LT Industrial Engineering) and *Solid State Physics* (LM Materials and Production Engineering).

Since 2001 he is teacher of the Doctorate School of Materials Engineering and, now, of the Doctorate School on Materials, Mechatronics and System Engineering, teaching at the courses *Optical Properties of Materials* and *Optical Properties of Nanomaterials*. The surveys on the

teaching quality point out a high satisfaction level for courses held by Alberto Quaranta, at levels higher than the Faculty and Department averages.

At present Alberto Quaranta is coordinator of the Master Course Materials Production and Engineering at the Department of Industrial Engineering in Trento.

THESES

Tutor of 10 PhD theses at the Industrial Engineering Department, University of Trento.

Tutor of 16 Master theses for the Materials Engineering Master course.

Tutor of 40 Bachelor theses for the Industrial Engineering Bachelor course, University of Trento.

Co-tutor of 2 Master theses for the Physics Master course, University of Padua.

Co-tutor of 2 Master theses for the Environmental and Ambient Engineering Master course, University of Trento.

ORGANIZATION ACTIVITIES

Alberto Quaranta was member of the scientific committee of three International Congresses and one National Congress. He was also principal organizer of an International Congress and of 2 International Summer Schools. He was member of two commissions for competition for Assistant Professor and of several commissions for the assignment of PhD degrees.

At present Alberto Quaranta is **local coordinator of the 5th Commission INFN Group at TIFPA** (Trento Institute of Fundamental Physics and Applications).

ROLES IN EXPERIMENTS AND SCIENTIFIC PROJECTS

Summary

Alberto Quaranta has been:

- National scientific chairman of 3 5th Commission INFN experiments (ORIONE, HIDE, ELOFLEX).
- Local Unit scientific chairman of 4 5th Commission INFN experiments (ASTHICO, LUPO, NADIR, AXIAL).
- Scientific chairman of a Cooperation and Research project of the Trento Cooperation Federation.
- WP Coordinator of an ERA-NET Consortium for Nuclear Physics Infrastructures project, entitled NEutron DETector developments for Nuclear Structure, Astrophysics and Applications (NEDENSAA).
- Chairperson for experiments at facilities of three foreign laboratories and a national INFN laboratory.
- Scientific chairman of 5 contracts with private companies for the Department.
- Referee of International projects.
- Members of research groups of PRIN e INFN projects.

At present he has a research assignment at the national scientific centre TIFPA (Trento Institute of Fundamental Physics and Applications).

CONGRESSES

Alberto Quaranta has been invited speaker at 3 international congresses and at a national congress. He was speaker at 14 international congresses and at an International School. He gave 8 invited seminars at Italian Universities and International Research Centers.

SCIENTIFIC ACTIVITY

Summary

Alberto Quaranta worked as a scientist from 1990 to 1995 at the Physics Department of University of Padua and since 1995 at the Department of Materials Engineering, then Department of Materials Engineering and Industrial Technologies and now Department of Industrial Engineering of the University of Trento.

Moreover, from 1995 to 2006 he had the Scientific Association at the INFN – Legnaro National Laboratories, from 2006 to 2014 he had the Technological Research Nomination at the INFN – Legnaro National Laboratories and since 2015 he has the Technological Research Nomination at the INFN section of the Trento Institute of Fundamental Physics and Applications (TIFPA).

In general the research interests of Alberto Quaranta are related to the study of the optical properties of functional materials for optoelectronics, chemical sensors and ionizing radiation detectors. In particular, the activity can be summarized by the following arguments:

- Study of the production and optical properties of ceramic materials containing doping ions or nanoparticles.
- Study of organic or hybrid functional materials for the realization of optical sensors for volatile organic compounds (VOCs).
- Study of new scintillating materials for ionizing radiation and neutron detectors.
- Study of the Ion Beam Induced Luminescence (IBIL) technique for materials analysis.

- Study of hybrid or ceramic materials for Luminescent Down Shifters (LDS) or Luminescent Solar Concentrators (LSC) for solar cells.

Moreover, Alberto Quaranta followed interdisciplinary research activities with scientists of different scientific areas. In particular, he worked on optical methods for the analysis of the pasteurization capability of supercritical fluids and for the light scattering analysis of biomasses. Finally, he developed the first studies on the use of IBIL for the analysis of cultural heritage materials.

The research activity of Alberto Quaranta is described by **140 papers published on peer reviewed journals** and by more than 30 publications on congress proceedings.

h-index	28
Total number of citations	2535

Publications on ISI Journals

1992

[A1] F. Gonella and **A. Quaranta**; "Stress induced birefringence in silver-diffused glass waveguides". *Journal of Modern Optics*, Vol. 39, no. 7, 1992, pp. 1401-1405.

1993

[A2] Francesco Gonella and **Alberto Quaranta**; "On the recovery of refractive-index profiles of ion-exchanged glass waveguides". *Pure and Applied Optics*, Vol. 2, 1993, pp. 405-409.

1994

[A3] **A. Quaranta**, F. Gonella, F.C. Caccavale, G. Brusatin; "SIMS-RBS depth profiling of silver-diffused glass systems". *SIA, Surface and Interface Analysis*, Vol. 21, 1994, pp. 210-212.

[A4] F. Gonella and **A. Quaranta**; "Refractive index profiles of double-silver-exchanged glass systems". *Journal of Modern Optics*, Vol. 41, no. 1, 1994, pp. 1-4.

[A5] F. Gonella, F. Caccavale and **A. Quaranta**; "Secondary Ion Mass Spectrometry applied to the study of ion-exchanged glass waveguides with a few modes". *International Journal of Optoelectronics*, Vol. 9, no. 4, 1994, pp. 359-363.

1995

[A6] F. Caccavale, G. De Marchi, F. Gonella, P. Mazzoldi, C. Meneghini, **A. Quaranta**, G.W. Arnold, G. Battaglin, G. Mattei; "Irradiation-induced Ag-colloid formation in ion-exchanged soda-lime glass", *Nuclear Instruments & Methods*, Vol. B96, 1995, pp. 382-386.

[A7] F. Gonella, **A. Quaranta** and F. Garrido; "Silver implantation of K^+ - Na^+ ion-exchanged glass waveguides". *Electronics Letters*, Vol. 31, 12, 1995, pp. 968-969.

[A8] F. Caccavale, F. Gonella, **A. Quaranta** and I. Mansour; "Ti:LiNbO₃ waveguides study by secondary ion mass spectrometry and near field method". *Electronics Letters*, Vol. 31, 13, 1995, pp. 1054-1055.

[A9] F. Caccavale, P. Chakraborty, **A. Quaranta**, G. Gianello, I. Mansour, R. Corsini, G. Mussi; "Secondary ion mass spectrometry and near field study of Ti:LiNbO₃ optical waveguides". *Journal of Applied Physics*, Vol. 78, no. 9, 1995, pp. 5345-5350.

[A10] F. Garrido, F. Caccavale, F. Gonella and **A. Quaranta**; "Silver colloidal waveguides for non-linear optics: a new methodology". *Pure and Applied Optics*, Vol. 4, 1995, pp. 771-776.

[A11] **A. Quaranta**, F. Gonella; "On the role of local electric field correlation effects on the ionic interdiffusion in soda-lime glass". *Journal of Non-Crystalline Solids*, Vol. 192&193, 1995, pp. 334-337.

1996

[A12] G. De Marchi, F. Caccavale, F. Gonella, G. Mattei, P. Mazzoldi, G. Battaglin, **A. Quaranta**; "Silver nanoclusters formation in ion-exchanged waveguides by annealing in hydrogen atmosphere". *Applied Physics*, Vol. A 63, 1996, pp. 403-407.

[A13] F. Gonella, **A. Quaranta**, A. Sambo, F. Caccavale, I. Mansour; "Construction of glass waveguide refractive index profiles by the effective index-finite difference method". *Optical Materials*, Vol. 5, 1996, pp. 321-326.

[A14] F. Garrido, J.-C. Dran, L. Thomé, C. Meneghini, F. Gonella, **A. Quaranta**; "High-energy ion-beam mixing: a new route to form metallic nanoclusters in a dielectric matrix". *Nuclear Instruments & Methods*, Vol. B115, 1996, pp. 561-564.

[A15] G.W. Arnold, G. De Marchi, F. Gonella, P. Mazzoldi, **A. Quaranta**, G. Battaglin, M. Catalano, F. Garrido, R.F. Haglund, Jr.; "Formation of nonlinear optical waveguides by using ion-exchange and implantation techniques". *Nuclear Instruments & Methods*, Vol. B116, 1996, pp. 507-510.

1997

- [A16] F. Gonella, G. Mattei, P. Mazzoldi, F. Spizzo, **A. Quaranta**, G. De; "Characterization of metal quantum-dot composites by optical absorption spectroscopy". *Philosophical Magazine B*, Vol. 76, no. 4, 1997, pp. 615-619.
- [A17] G. Cuttone, C. Marchetta, L. Torrisi, G. Della Mea, **A. Quaranta**, V. Rigato, S. Zandolin; "Surface treatment of HV electrodes for superconducting cyclotron beam extraction". *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 4, no. 2, 1997, pp. 218-223.
- [A18] G. Rizza, F. Garrido, J.C. Pivin, J.C. Dran, L. Thomè, M. Gusso, L. Tapfer, **A. Quaranta**, P. Colombo; "Ion-beam mixing of metal-insulator multilayers: a promising technique for the formation of metallic nanophases". *Nuclear Instruments & Methods*, Vol. B127/128, 1997, pp. 574-578.
- [A19] L. Torrisi, G. Cuttone, Man Kaidi, C. Gentile, A. Makhtari, G. Della Mea, **A. Quaranta**, V. Rigato; "Titanium nitride insulation for the deflector of superconducting cyclotrons". *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 4, 3, 1997, pp. 300-305.

1998

- [A20] F. Gonella, F. Caccavale, **A. Quaranta** and A. Sambo; "Copper-doped ion-exchanged waveguides characterization". *Journal of Modern Optics*, Vol. 45, 1998, pp. 837-845.
- [A21] F. Gonella, F. Caccavale, L. Bogomolova, F. D'Acapito, **A. Quaranta**; "Experimental study of copper-alkali ion exchange in glass". *Journal of Applied Physics*, Vol. 83, no. 3, 1998, pp. 1200-1206.
- [A22] L. Thomé, G. Rizza, F. Garrido, J.C. Pivin, M. Gusso, L. Tapfer, **A. Quaranta**; "Formation of metallic nanophases in silica by ion beam mixing. Part II: cluster formation" *Applied Physics*, Vol. A 67, 1998, pp. 241-247.
- [A23] J.C. Pivin, P. Colombo, M. Sendova-Vassileva, J. Salomon, G. Sagon, **A. Quaranta**; "Ion-induced conversion of polysiloxanes and polycarbosilanes into ceramics: mechanisms and properties". *Nuclear Instruments & Methods.*, Vol. B141, 1998, pp. 652-662.
- [A24] E. Borsella, F. Gonella, P. Mazzoldi, **A. Quaranta**, G. Battaglin, R. Polloni; "Spectroscopic investigation of Silver in Soda-Lime glass". *Chemical Physics Letters*, Vol. 284, 1998, pp. 429-434.

1999

- [A25] E. Borsella, E. Cattaruzza, G. De Marchi, F. Gonella, G. Mattei, P. Mazzoldi, **A. Quaranta**, G. Battaglin, R. Polloni; "Synthesis of silver nanoclusters in silica based glasses for optoelectronics applications", *Journal of Non-Crystalline Solids*, Vol. 245, 1999, pp. 122-128.
- [A26] F. Gonella, G. Mattei, P. Mazzoldi, G. Battaglin, **A. Quaranta**, G. De, M. Montecchi; "Structural and optical properties of silver doped zirconia and mixed zirconia-silica matrices obtained by sol-gel processing". *Chemistry of Materials*, Vol. 11, no. 3, 1999, pp. 814-821.
- [A27] E. Borsella, G. De Marchi, F. Caccavale, F. Gonella, G. Mattei, P. Mazzoldi, G. Battaglin, **A. Quaranta**, A. Miotello; "Silver nanoclusters formation in ion-exchanged waveguides: processing technique and phenomenological model". *Journal of Non-Crystalline Solids*, Vol. 253, 1999, pp. 261-267.
- [A28] Cuttone G, Azario L, Tonghi LB, Borchì E, Boscarino D, Bruzzi M, Bucciolini M, Cirrone GAP, De Angelis C, Della Mea G, Fattibene P, Gori C, Guasti A, Maggioni G, Mazzocchi S, Onori S, Pacilio M, Petetti E, Piermattei A, Pirollo S, **Quaranta A**, Raffaele L, Rigato V, Rovelli A, Sabini MG, Sciortino S, Zatelli G; "The CANDIDO project: development of a CVD diamond dosimeter for applications in radiotherapy". *Nuclear Physics B-Proceedings Supplements*, Vol. 78, 1999, pp. 587-591.

2000

- [A29] A. Miotello, G. De Marchi, G. Mattei, P. Mazzoldi, **A. Quaranta**; "Clustering of silver atoms in hydrogenated silver-sodium exchanged glass". *Applied Physics*, Vol. A 70, no. 4, 2000, pp. 415-419.

- [A30] E. Borsella, G. Battaglin, M.A. Garcia, F. Gonella, P. Mazzoldi, R. Polloni, **A. Quaranta**; "Structural incorporation of silver in soda-lime glass by the ion-exchange process: a photoluminescence spectroscopy study". *Applied Physics*, Vol. A 70, no. 8, 2000, pp. 125-132.
- [A31] G. De, G. Mattei, P. Mazzoldi, C. Sada, G. Battaglin, **A. Quaranta**; "Au-Cu alloy nanocluster doped SiO₂ films by sol-gel processing". *Chemistry of Materials*, 2000, Vol. 12, no. 8, 2000, pp. 2157-2160.

2001

- [A32] **A. Quaranta**, S. Carturan, G. Maggioni, G. Della Mea, M. Ischia and R. Camprostrini; "Optical study of dye containing fluorinated polyimide thin films". *Applied Physics*, Vol. A 72, no. 6, 2001, pp. 671-677.
- [A33] **A. Quaranta**, S. Carturan, G. Maggioni, P.M. Milazzo, U. Abbondanno, G. Della Mea, F. Gramegna, U. Pieri; "Polyimide based scintillating thin films", *IEEE Transaction on Nuclear Science*, Vol. 48, no. 2, 2001, pp.219-224.
- [A34] E. Borsella, S. Dal Toè, G. Mattei, C. Maurizio, P. Mazzoldi, A. Saber, G.C. Battaglin, E. Cattaruzza, F. Gonella, **A. Quaranta**, F. D'Acapito; "Synthesis, structure and optical properties of GaN nanocrystals prepared by sequential ion implantation in dielectrics", *Materials Science and Engineering B*, Vol. 82, 2001, pp. 148-150.
- [A35] E. Borsella, M.A. Garcia, G. Mattei, C. Maurizio, P. Mazzoldi, E. Cattaruzza, F. Gonella, G. Battaglin, **A. Quaranta**, F. D'Acapito; "Synthesis of GaN quantum dots by ion implantation in dielectrics", *Journal of Applied Physics*, Vol. 90, no. 9, 2001, pp. 4467-4473.
- [A36] **A. Quaranta**, G. Maggioni, S. Carturan, G. Della Mea, C. Duverger; "Synthesis and characterization of dye containing fluorinated polyimide thin films", *Synthetic metals*, Vol. 124, 2001, pp. 75-77.

2002

- [A37] E. Borsella, A. Dal Vecchio, M.A. Garcia, C. Sada, F. Gonella, R. Polloni, **A. Quaranta**, L.J.G. van Wilderen; "Copper doping of silicate glasses by the ion-exchange technique: a photoluminescence spectroscopy study", *Journal of Applied Physics*, Vol. 91, no. 1, 2002, pp. 90-98.
- [A38] **A. Quaranta**, A. Vomiero, S. Carturan, G. Maggioni, G. Della Mea; "Polymer film degradation under ion irradiation studied by (IBIL) Ion Beam Induced Luminescence and optical analyses", *Nuclear Instruments and Methods B*, Vol. B 191, 2002, 680-684.
- [A39] E. Borsella, C. de Julian Fernandez, M.A. Garcia, G. Mattei, C. Maurizio, P. Mazzoldi, S. Padovani, C. Sada, G. Battaglin, E. Cattaruzza, F. Gonella, **A. Quaranta**, F. D'Acapito, M.A. Tagliente, L. Tapfer; "Synthesis of wide band gap nanocrystals by ion implantation", *Nuclear Instruments and Methods B*, Vol. B 191, 2002, 447-451.
- [A40] **A. Quaranta**, A. Vomiero, G. Della Mea; "Scintillation mechanism and efficiency of ternary scintillating thin films", *IEEE Transaction on Nuclear Science* Vol. 49, no. 5, 2002, pp.219-224.
- [A41] G. Maggioni, S. Carturan, **A. Quaranta**, G. Della Mea, A. Patelli; "Deposition of thin dye coatings by glow discharge induced sublimation", *Chemistry of Materials* Vol. 14, no. 11, 2002, pp. 4790-4795.

2003

- [A42] S. Carturan, **A. Quaranta**, G. Maggioni, A. Vomiero, R. Ceccato, G. Della Mea; "Optical study of the matrix on the ESIPT mechanism of 3-HF doped sol-gel glass", *Journal of Sol-Gel Science and Technology*, Vol. 26, 2003, pp.931-935.
- [A43] G. Battaglin, E. Cattaruzza, F. Gonella, R. Polloni, F. D'Acapito, S. Colonna, G. Mattei, C. Maurizio, P. Mazzoldi, S. Padovani, C. Sada, **A. Quaranta**, A. Longo; "Silver nanocluster formation in ion-exchanged glasses by annealing, ion beam and laser beam irradiation: an EXAFS study", *Nuclear Instruments and Methods B*, Vol. B 200, 2003, pp.185-190.
- [A44] **A. Quaranta**, A. Vomiero, S. Carturan, G. Maggioni, G. Della Mea; "New high-radiation resistant scintillating thin films", *Synthetic Metals*, Vol. 138, no. 1-2, 2003, pp. 275-279.

- [A45] G. Maggioni, S. Carturan, **A. Quaranta**, A. Patelli, G. Della Mea, V. Rigato; "Deposition of fluorescent organic coatings by glow discharge induced sublimation", *Surface and Coatings Technology*, Vol. 174-175, 2003, pp. 1151-1158.
- [A46] **A. Quaranta**, S. Carturan, G. Maggioni, R. Ceccato, G. Della Mea; "Probing the chemical environment of 3-hydroxyflavone doped ORMOSILs by a spectroscopic study of excited state intramolecular proton transfer", *Journal of Non-Crystalline Solids*, Vol. 322, no. 1-3, 2003, pp. 1-6.
- [A47] G. Naletto, A. Boscolo, J. Wyss, **A. Quaranta**, "Effects of proton irradiation on glass filter substrates for the Rosetta mission", *Applied Optics*, Vol. 42, no. 19, 2003, pp. 3970-3980.
- [A48] C. Maurizio, G. Mattei, M.A. Garcia, E. Borsella, P. Mazzoldi, **A. Quaranta**, F. D'Acapito, "Towards controllable optical response of GaN quantum dots in alumina", *European Physics Journal* Vol. D 25, no.1, 2003, pp. 25-29.

2004

- [A49] Yujun Zhang, **Alberto Quaranta**, Giandomenico Soraru; "Synthesis and luminescent properties of Eu^{2+} -doped sol-gel silicon oxycarbide glasses", *Optical Materials*, Vol. 24, no. 4, 2004, pp. 601-605.
- [A50] S. Carturan, **A. Quaranta**, G. Maggioni, M. Bonafini, G. Della Mea; "3-hydroxyflavone based wavelength shifting systems for near UV optical sensors", *Sensors and Actuators A*, Vol. 113, no. 3, 2004, pp. 288-292.
- [A51] G. Maggioni, **A. Quaranta**, E. Negro, S. Carturan, G. Della Mea, "Glow-Discharge-Induced sublimation of polyimide precursor monomers: a systematic study", *Chemistry of Materials*, Vol 16, no. 12, 2004, pp. 2394-2403.
- [A52] **A. Quaranta**, R. Ceccato, C. Menato, L. Pederiva, N. Capra, R. Dal Maschio, "Formation of copper nanocrystals in alkali-lime silica glass by means of different reducing agents", *Journal of Non Crystalline Solids*, Vol. 345-346, 2004, pp. 671-675.
- [A53] G. Maggioni, A. Vomiero, S. Carturan, C. Scian, G. Mattei, C. Bazzan, C. de Juliàn Fernandez, P. Mazzoldi, **A. Quaranta**, G. Della Mea, "Structure and optical properties of Au-polyimide nanocomposite films prepared by ion implantation", *Applied Physics Letters*, Vol. 85, no. 23, 2004, pp. 5712-5714.
- [A54] A. Vomiero, E. Boscolo Marchi, S. Frabboni, **A. Quaranta**, G. Della Mea, G. Mariotto, L. Felisari, M. Butturi, "Effects of thermal annealing on the structural properties of sputtered W-Si-N diffusion barriers", *Materials Science in Semiconductor Processing*, Vol. 7, no. 4-6, 2004, pp. 325-330.
- [A55] G. Das, G. Mariotto, **A. Quaranta**, "Vibrational spectroscopy characterization of low dielectric constant SIOC:H films prepared by PECVD technique", *Materials Science in Semiconductor Processing*, Vol. 7, no. 4-6, 2004, pp. 295-300.

2005

- [A56] D. Boscarino A. Vomiero, G. Mattei, **A. Quaranta**, P. Mazzoldi, G. Della Mea, "Deposition of silica-silver nanocomposites by magnetron cosputtering", *Journal of Vacuum Science and Technology B*, Vol. 23, no. 1, 2005, pp. 11-19.
- [A57] F. Gonella, **A. Quaranta**, E. Cattaruzza, S. Padovani, C. Sada, F. D'Acapito, C. Maurizio, "Cu-alkali ion-exchange in glass: a model for the copper diffusion based on XAFS experiments", *Computational Materials Science*, Vol. 33, no. 1-3, 2005, pp. 31-36.
- [A58] F. Gonella, **A. Quaranta**, S. Padovani, C. Sada, F. D'Acapito, C. Maurizio, G. Battaglin, E. Cattaruzza, "Copper diffusion in ion-exchanged soda-lime glass", *Applied Physics A*, Vol. 81, n. 5, 2005, pp. 1065-1071.
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- [A60] G. Maggioni, **A. Quaranta**, S. Carturan, A. Patelli, M. Tonezzer, R. Ceccato, G. Della Mea, "Deposition of copper phthalocyanine films by glow discharge induced sublimation", *Chemistry of Materials*, Vol. 17, no. 7, 2005, pp. 1895-1904.

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- [A62] G. Maggioni, **A. Quaranta**, S. Carturan, A. Patelli, M. Tonezzer, R. Ceccato, G. Della Mea, “Deposition of copper phthalocyanine films by glow-discharge-induced sublimation for gas sensing applications”, *Surface and Coatings Technology*, Vol. 200, n. 1-4, 2005, pp. 476-480.
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- [A65] C. de Julián Fernández, M. G. Manera, J. Spadavecchia, G. Maggioni, **A. Quaranta**, G. Mattei, M. Bazzan, E. Cattaruzza, M. Bonafini, E. Negro, A. Vomiero, S. Carturan, C. Scian, G. Della Mea, R. Rella, L. Vasanelli, P. Mazzoldi, “Study of the gas optical sensing properties of Au-polyimide nanocomposite films prepared by ion implantation”, *Sensors and Actuators B*, Vol. 111-112, 2005, pp. 225-229.

2006

- [A66] G. Das, G. Mariotto, **A. Quaranta**, “Micro-structural evolution of thermally treated low-dielectric constant SiOC:H films prepared by plasma enhanced chemical vapour deposition”, *Journal of the Electrochemical Society*, Vol. 153, n. 3, 2006, pp.F46-F51.
- [A67] A. Vomiero, E. Boscolo Marchi, G. Mariotto, **A. Quaranta**, G. Della Mea, G. Ottaviani, R. Tonini, M. Butturi, G. Martinelli, “Composition and resistivity changes of reactively sputtered W-Si-N thin films under vacuum annealing”, *Applied Physics Letters*, Vol. 88, n. 3, 2006, art. 031917.
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- [B14] G. Battaglin, R. Polloni, G. De Marchi, F. Caccavale, F. Gonella, G. Mattei, P. Mazzoldi, **A. Quaranta**, F. Spizzo, G. De, R.F. Haglund Jr.; "Metal nanoclusters formation in thin films and ion-exchanged waveguides for nonlinear optical application". *Proceedings of the International Conference on Fibre Optics & Photonics*, Madras, India, 9-13 dicembre 1996, p. 36.
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- [B16] F. Gonella, F. Caccavale, E. Cattaruzza, G. De Marchi, P. Mazzoldi, G. Battaglin, **A. Quaranta**, G. De; "Metal colloidal glasses for integrated optics". *Proceedings ECIO 97, 8TH European Conference on Integrated Optics*, 2-4 aprile 1997, Stockholm, Svezia, p. 310/ETHH4-1.
- [B17] G. Battaglin, E. Borsella, G. De Marchi, F. Gonella, G. Mattei, P. Mazzoldi, **A. Quaranta**; "Formation of nonlinear optical MQD (Metal Quantum-Dot) in waveguides and modification by high power laser irradiation". *SPIE Proceedings*, Vol. 3405, *ROMOPTO '97 - Fifth Conference on Optics*, Bucharest, Romania, 9-12 Settembre 1997, p. 533.
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- [B19] E. Borsella, F. Gonella, G. Mattei, P. Mazzoldi, G. Battaglin, **A. Quaranta**, G. De and M. Montecchi: "Annealing behaviour of silver nanoclusters in zirconia and mixed zirconia-silica matrices synthesized by the sol-gel technique". *Proceedings XVIII International Congress on Glass*, S. Francisco, Luglio 1998.
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- [B21] G. Maggioni, **A. Quaranta**, E. Negro, S. Carturan, G. Della Mea, "Plasma deposited polyimide precursor monomers: preparation and optical study of thin coatings", *Proceedings 16th International Symposium on Plasma Chemistry (ISPC-16)*, Taormina 22-27 giugno 2003.
- [B22] A. Vomiero, S. Frabboni, E. B. Marchi, **A. Quaranta**, G. Della Mea, G. Mariotto, L. Felisari, "Structural and functional characterization of W-Si-N sputtered thin films for copper metallization" (MRS Spring Meeting San Francisco 2004), *MRS Symposium Proceedings*, Vol. 818, 2004, pp. F3.10.1-F3.10.6
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- [B24] M. Tonezzer, A. Quaranta, E. Negro, G. Della Mea, S. Carturan, G. Maggioni, "A comparison between optical gas sensing capabilities of vacuum evaporated and spin coated tetra phenyl-porphyrin thin films", *Proceedings 10th National Conference AISEM 2005*, Firenze 15-17 Febbraio 2005.
- [B25] M. Tonezzer, G. Maggioni, K. Severova, S. Carturan, A. Quaranta, G. Della Mea, "Development of new H2TPP porphyrin films with improve optical sensing capabilities", *Proceedings of SPIE*, Vol. 6585, 2007, art. No. 65850X.
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- [B27] M. Tonezzer, G. Maggioni, A. Quaranta, R. Milan, S. Carturan, G. Della Mea, "New Wavelength Shifting Organic Systems for Photovoltaics Applications", XIX congresso AIV.
- [B28] S. Carturan, M. Tonezzer, A. Quaranta, G. Maggioni, M. Buffa, R. Milan, G. Della Mea, "Optical gas sensing capabilities of free-base meso tetraphenylporphyrin embedded in fluorinated polyimides", *Sensors and Microsystems* (2008) in press.
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- [B31] M. Tonezzer, G. Maggioni, A. Quaranta, S. Carturan, G. Della Mea, "A new competitive technique for the production of porphyrin thin films", *Sensors and Microsystems*, (2006) 107.
- [B32] S. Carturan, G. Maggioni, A. Quaranta, M. Tonezzer, G. Della Mea, C. De Julian Fernandez, G. Mattei, P. Mazzoldi, "Polyimide-trapped metal nanoclusters for organic vapours detection", *Sensors and Microsystems* (2006) 112.

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2nd International Multidisciplinary Microscopy and Microanalysis Congress and Exhibition, INTERM 2014; Oludeniz; Turkey; 16 October 2014 through 19 October 2014

[B34] Carturan, S.M., Marchi, T., Maggioni, G., Gramegna, F., Degerlier, M., Cinausero, M., Dalla Palma, M., **Quaranta, A.**, “Thermal neutron detection by entrapping ${}^6\text{LiF}$ nanocrystals in siloxane scintillators”, Journal of Physics: Conference Series, Volume 620, Issue 1, 11 June 2015, Article number 012010.

Workshop on the Applications of Novel Scintillators in Research and Industry, ANSRI 2015; University College Dublin; Dublin; Ireland; 12 January 2015 through 14 January 2015.

[B35] Mendicino, R., Bagolini, A., Boscardin, M., Dalla Betta, G.-F., Dalla Palma, M., **Quaranta, A.**, “Semiconductor neutron detectors”, Proceedings of Science, Volume 2015-June, 2015, Article number 027.

24th International Workshop on Vertex Detectors, VERTEX 2015; Santa Fe; United States; 1 June 2015 through 5 June 2015.

[B36] Carturan, S., Maggioni, G., Marchi, T., Gramegna, F., Cinausero, M., **Quaranta, A.**, Dalla Palma, M., “ ${}^6\text{LiF}$ oleic acid capped nanoparticles entrapment in siloxanes for thermal neutron detection”, AIP Conference Proceedings Volume 1753, 7 July 2016, Article number 070005.

11th Latin American Symposium on Nuclear Physics and Applications, LASNPA 2015; Edificio de Extension de la Universidad de AntioquiaMedellin; Colombia; 30 November 2015 through 4 December 2015.

[B37] Mendicino, R., Bagolini, A., Boscardin, M., Dalla Betta, G.-F., Dalla Palma, M., **Quaranta, A.**, “A new geometry for hybrid detectors of neutrons based on microstructured silicon sensors filled with ${}^{10}\text{B}_4\text{C}$ ”, 2015 IEEE Nuclear Science Symposium and Medical Imaging Conference, NSS/MIC 2015

3 October 2016, Article number 7581909.

2015 IEEE Nuclear Science Symposium and Medical Imaging Conference, NSS/MIC 2015; San Diego; United States; 31 October 2015 through 7 November 2015.

CURRICULUM VITAE

INFORMAZIONI PERSONALI **MARTA DALLA VECCHIA**

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Data di nascita 15/02/1969

Nazionalità Italiana

C.F. DLLMRT69B55I531X

POSIZIONE ATTUALMENTE RICOPERTA

Direttore Servizio Salute e Ambiente
INFN Amministrazione Centrale
Responsabile Servizio Prevenzione e Protezione
INFN Sezione di Padova
Esperto Qualificato III grado
INFN Sezione di Padova
Referente Locale Trasferimento Tecnologico
INFN Sezione di Padova

TITOLI DI STUDIO

Laurea in Fisica (a.a 1993/94)
Master per Responsabile Sicurezza e Ambiente (a.a 1995/96)
Iscrizione all'Elenco degli Esperti Qualificati di III grado (1999)
Formatore in materia salute e sicurezza sul lavoro (2014)
Tecnico Sicurezza Laser (2016)

ATTIVITA' SVOLTA, FUNZIONI ESERCITATE, INCARICHI RICOPERTI

- da novembre 2017 **Direttore Servizio Salute e Ambiente**
INFN – Amministrazione Centrale
Attività o settore Ricerca
- da settembre 1998 **Primo Tecnologo (II livello professionale)**
fino al 2008 Tecnologo (I livello Professionale)
INFN - Sezione di Padova
- Responsabile del Servizio di Prevenzione e Protezione
 - Esperto qualificato III grado
 - Referente Trasferimento Tecnologico (*da dicembre 2015*)
- Attività o settore** Ricerca
- dall'a.a 2006/2007 **Docente Master Universitario e Formazione Superiore**
Università degli Studi di Padova – Regione Veneto
- Docente Master post laurea
- Attività o settore** Università e Formazione
- da aprile 2015 a
febbraio 2018 **Primo Tecnologo (II livello professionale)**
INFN - TIFPA - Trento
- Responsabile del Servizio di Prevenzione e Protezione
 - Esperto qualificato III grado
- Attività o settore** Ricerca

- da luglio 2009
a luglio 2014 **Comune di Padova**
Giunta Comunale - Assessore
Attività o settore Incarico Istituzionale
- da settembre 1996 a
settembre 1998 **Ricercatore - Borsista**
INFN - Laboratori Nazionali di Legnaro
 - Ricerca con il Gruppo di Radiobiologia dei L.N.L. (gruppo V)
 - Collaborazione con il SPP dei L.N.L.**Attività o settore** Ricerca
- 1997 **Collaboratore**
T.N.G.-Telescopio Nazionale Galileo, Canarie - E
 - Consulenza in materia di Igiene e Sicurezza**Attività o settore** Ricerca
- da aprile a settembre
1996 **Dipendente Tecnico**
Ruote O.Z. S.p.A., San Martino di Lupari - PADOVA
 - Addetto Ufficio Tecnico Sicurezza**Attività o settore** Produzione cerchi in lega
- da maggio ad agosto
1995 **Ricercatore**
M.R.C.- Radibiology Unit, Didcot - Oxon - U.K.
 - Ricerca sugli Effetti Biologici delle Radiazioni.**Attività o settore** Ricerca
- da gennaio ad aprile
1995 **Insegnante**
Istituto Tecnico Commerciale e per Geometri "Pasini" Schio (VI)
 - Insegnate di Matematica**Attività o settore** Istruzione Scolastica Superiore
- da luglio a novembre
1994 **Borsista**
INFN - Laboratori Nazionali di Legnaro
 - Ricerca con il Gruppo di Radiobiologia dei L.N.L. (gruppo V)**Attività o settore** Ricerca

STUDI COMPIUTI E TITOLI CONSEGUITI

- 2016 Aias Accademy – Milano
Tecnico Sicurezza Laser
- 2014 Aifos- Lisa Servizi
Qualifica di formatore in materia di Sicurezza sul Lavoro
- 1999 FITA - Confindustria – ROMA
Safety Auditor - Sistemi di Gestione della SSL
- 1999 Ministero del Lavoro - Ispettorato Medico Centrale
Iscrizione all'Elenco degli Esperti Qualificati di III grado
- ottobre1995-
marzo 1996 Fondazione CUAO di Altavilla e Associazione Industriali di Vicenza
Master per Responsabile Sicurezza e Ambiente
 - Tesi di Master in Sicurezza e Ambiente presso Ruote OZ SpA
- luglio 1994 Università degli Studi di Padova
Laurea in Fisica (votazione finale 100/110)
 - Tesi di Laurea sugli effetti biologici delle radiazioni ionizzanti

COMPETENZE PERSONALI

Lingua madre	Italiano
Altre lingue	Inglese livello C1
Competenze comunicative	Possiedo competenze comunicative molto buone acquisite attraverso appositi corsi per formatori e consolidate grazie a numerose docenze riportate in allegato.
Competenze organizzative e gestionali	Possiedo ottime capacità organizzative e gestionali acquisite collaborando con l'ufficio risorse umane di Ruote O.Z. SpA, consolidate all'INFN dove ho coordinato molti gruppi di lavoro e dove dirigo il Servizio Salute e Ambiente presso l'Amministrazione Centrale, infine ampliate con il ruolo di amministratore al Comune di Padova dal 2009 al 2014 dove sono stata Assessore alle attività produttive, patrimonio, società partecipate e urbanistica.
Competenze professionali	Mi sono riconosciute elevate competenze professionali nel campo della Sicurezza sul Lavoro, della Radioprotezione e delle tematiche Ambientali, temi sui quali coordino l'attività INFN su piano nazionale e su cui ho presentato lavori in campo internazionale oltre ad insegnarle a livello universitario.
Competenze informatiche	Padronanza degli strumenti informatici necessari per Comunicazione, Gestione ed Elaborazione dati.

ALTRE INFORMAZIONI

Pubblicazioni	Allego:
Presentazioni	Descrizione Critica dell'attività Svolta
Progetti	Lista Pubblicazioni, lavori a stampa, progetti ed elaborati
Conferenze	Attività didattica e divulgativa, presentazioni a conferenze
Seminari	Partecipazione a conferenze e seminari e corsi di formazione
Dati personali	Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

ALLEGATI

- Descrizione critica dell'attività svolta
- Lista Pubblicazioni, Lavori a Stampa, Progetti ed Elaborati Tecnici
- Attività Didattica e Divulgativa, Presentazioni Orali, Conferenze
- Partecipazioni a Conferenze e Seminari e Corsi di Formazione

Aggiornamento 17 maggio 2018

Marta Dalla Vecchia



Curriculum vitae et studiorum

Marco Schwarz

January 2018

Personal information

Date and place of birth: 2/10/1969, Carmagnola(Italy).

Address: Via Gorizia 42, 38122 Trento - Italy

Nationality: Italian

Marital status: married, father of two

Phone: +39 340 199 5854

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Education

2007: PhD in Medicine, University of Amsterdam (The Netherlands). Thesis: *Intensity-modulated radiotherapy techniques for prostate, head-and-neck and lung cancer.*

1999: Medical Physics certification, University of Milano (Italy).

1995: MSc in Physics, University of Torino (Italy).

Work experience

Current position: Head of Medical Physics, Protontherapy Department, Trento. The medical physics group went through acceptance and clinical commissioning of the proton facility, and is responsible for the medical physics aspects of clinical operations, which started in October 2014. I also head the Medical Physics section of the Trento Institute for Fundamental Physics and Applications (TIFPA), which is responsible for the research activities at the Protontherapy center.

Jun 2011-Dec 2013: Head of Medical Physics, Agenzia Provinciale per la Protonterapia (ATreP). My duties included the coordination of medical physics activities on contract monitoring and acceptance testing of the proton therapy equipment, development of tools not commercially available, negotiating with the PT company the technical specifications of products under development, hiring and

training new personnel, starting and running R&D collaborations with local, national and international research partners. ATreP ceased to exist in December 2013, after completion of the acceptance tests of the PT center.

Nov 2005-Jul 2007 and Sept 2008-Dec2011: Staff Medical Physicist at Agenzia Provinciale per la Protonterapia (ATreP), Trento. I was involved in all phases of Trento's proton therapy project, i.e. defining technical specification, running technical negotiations and, after contract signature, contract monitoring for the technical aspects.

Aug 2007-Jul 2008: fellowship at the Francis H. Burr Proton Therapy Center of Massachusetts General Hospital in Boston(USA), to gain experience in both clinical practice and research in proton therapy.

2001-2005: Radiation Oncology Department, Netherlands Cancer Institute, Amsterdam (NED) - Research physicist in a project funded by the Dutch Cancer Society ("Design and clinical implementation of IMRT techniques").

2000-2001: Medical Physics Department, Ordine Mauriziano and Institute for Cancer Research and Cure (IRCC), Torino (IT) - Staff Medical Physicist.

1999-2000: Medical Physics Department, IRCC, Torino(IT) - Consultant for radiotherapy equipment set-up and configuration in the Radiation Oncology and Medical Physics Departments.

1998-1999: Medical Physics Department, Mauriziano Hospital "Umberto I", Torino (IT) - Fellowship on Monte Carlo techniques in Radiotherapy.

1997-1998: Medical Physics Department, S. Giovanni Battista Hospital, Torino (IT) - Fellowship on "Quality assurance of ultrasound medical devices".

1996-1997: Medical Physics Department, S. Giovanni Battista Hospital, Torino (IT) - Fellowship in the EU-funded project "RAPT-2" (Radiotherapy Application Deployment on Parallel Technology).

1995-1996: Medical Physics Department, S. Giovanni Antica Sede Hospital, Torino (IT) - Fellowship in Monte Carlo dose calculation.

Teaching appointments

(Abbreviations. AIFM: Italian Association for Physics in Medicine. ESTRO: European Society for Radiation Oncology.)

2017: Course director, ESTRO Interdisciplinary pre-meeting course on "Medical physics aspects of particle therapy"

Since 2014: Habilitation ('abilitazione') for the position of Associate Professor in Physics (FIS/07)

Since 2012: Course director, ESTRO teaching course on "Intensity modulated radiation therapy and other conformal techniques in clinical practice"

Since 2010: Contract professor in 'Nuclear Physics applied to biomedicine'(2010-2016) and 'Medical Physics'(since 2016), Physics Department, University of Trento.

Since 2010: Faculty member, ESTRO teaching course on 'Advanced technologies'

2016,2013,2010: Course coordinator and faculty member, AIFM course on "Radiobiology applied to external beam radiotherapy"

2016: Course director, ESTRO Interdisciplinary pre-meeting course on "Planning and delivering high-dose lung radiotherapy in clinical practice"

2015: Scientific coordinator and faculty member, AIFM course on "Physical, technological and radiobiological fundamentals of hadrontherapy"

2006-2015: faculty member, Clatterbridge Cancer Centre(UK), "Radiobiology & Radiobiological modelling in Radiotherapy" course

2013: Course coordinator and faculty member, AIFM course on "Radiobiology applied to external beam radiotherapy".

2006-2012: faculty member, ESTRO course on "IMRT and other conformal techniques in clinical practice"

2012: Guest faculty coordinator and teacher, King Hussein Cancer Center (Amman, Jordan), 'Clinical radiobiology workshop'.

2010: Guest faculty coordinator and teacher, King Hussein Cancer Center (Amman, Jordan), UICC-sponsored 'IMRT and IGRT workshop'

Supervision of students and other academic appointments

Since 2010: Co-supervisor of 11 MSc thesis in physics and supervisor of 2 medical physics students.

2017 - University of Copenhagen - Opponent of a PhD thesis (Jenny Gorgisyan)

2017 - University of Manchester - Opponent of a PhD thesis (Matthew Lowe)

2016 - University of Pavia - Opponent of a PhD thesis (Elettra Bellinzona)

2015 - University of Milano - Opponent of a PhD thesis (Maxime Desplanques)

2015 - University of Aarhus (DK) - Opponent of a PhD thesis (Anne Vestergaard)

2012 - Politechnical School of Milano - Referee of a PhD thesis in biomedical engineering (Andrea Pella)

2011 - University of Torino - Opponent of a PhD thesis in Physics (Germano Russo)

Other professional appointments

Current

Since 2018: Member, International Advisory Board, Danish Center for Particle Therapy (DCPT)

Since 2018: Associate Editor, European Journal of Medical Physics (EJMP)

2017–2018: Scientific coordinator for Physics in Radiotherapy, 2018 AIFM congress

2017–2018: Chair of the physics track, 2018 ESTRO Congress

Since 2017: Member, Committee on protontherapy quality assurance, Italy's National Health Institute (Istituto Superiore di Sanita')

Since 2017: Member, Protontherapy Advisory board, Portugal's Ministry of Science&Technology

Since 2017: Member, Program Advisory Committee, Experimental Beam line, Proton therapy centre, Trento.

Since 2017: Coordinator, Education and training workpackage, ESTRO European Particle Therapy network.

Since 2016: Member, Scientific Advisory Board, Proton therapy centre, Essen (GER)

Since 2016: Member, Editorial Board of Physics&Imaging in Radiation Oncology (phiRO)

Since 2015: Head, Medical Physics Section, Trento Institute for Fundamental Physics and Applications (TIFPA)

Since 2015: Scientific fellow, National Institute for Nuclear Physics (INFN)

Since 2014: Fellow, Department of Physics, Trento University

Since 2014: Member, ESTRO physics committee

Since 2012: Member, Particle Therapy Collaborative Group(PTCOG) steering committee

Since 2010: Reviewer of manuscripts submitted to 'Physics in Medicine and Biology', 'Medical Physics', 'Radiotherapy and Oncology', 'International Journal of Radiation Oncology, Biology and Physics', 'European Journal of Medical Physics', 'Radiation Oncology'. Selected as 'Outstanding reviewer' for 2012 and 2013 by the editorial board of International Journal of Radiation Oncology, Biology and Physics. Abstract reviewer for ESTRO, PTCOG and AAPM.

Past

2013-2017: Member, Scientific Advisory Group Radiation Physics for the ESTRO congress

2016 - Project Reviewer for the Swiss National Science Foundation

2015-2017: Member, Editorial Board, European Journal of Medical Physics (EJMP)

2015 - External expert for the Proton therapy project in Leuven

2015 - Project reviewer for the Research Foundation Flanders (FWO)

2014 - Advisor, National Particle Therapy Research project, UT Southwestern, Dallas, US.

2013 - Project reviewer for the French National Institute for Health and Medical Research (Inserm)

2011 - Project reviewer for the Italian Ministry for University and Scientific Research (MIUR).

2011 - Reviewer of a EU research project (Framework Program 7 - 'Research projects for the benefit of small and medium enterprises')

2011 - Independent Expert for the European Commission - Framework Program 7 - 'Research for small and medium enterprises' (FP7-SME-2008-1);

2008 - Member of QUANTEC (QUAntitative estimates of Normal Tissue Effects in the Clinic) working group promoted by AAPM and ASTRO.

Publications

Full papers (Google scholar profile at <http://scholar.google.it/citations?user=AdFRYJMAAAAJ&hl=en> h-index calculated by Google Scholar:18)

1. L Stolarczyk et al, *Dose distribution of secondary radiation in a water phantom for a proton pencil beam - EURADOS WG9 inter-comparison exercise* Physics in Medicine and Biology, accepted for publication, 2018.
2. S Muraro et al, *Proton therapy treatment monitoring with the DoPET system: activity range, positron emitters - evaluation and comparison with Monte Carlo predictions* JINST 12 C12026, 2017.
3. F Tommasino et al, *Proton beam characterization in the experimental room of the Trento Proton Therapy facility*. Nuclear Inst. and Methods in Physics Research, A 869 (2017) 1520.
4. N Bizzocchi et al, *A fast and reliable method for daily quality assurance in spot scanning proton therapy with a compact and inexpensive phantom*, Medical Dosimetry 42 (2017) 238246.
5. L Brombal et al, *Proton Therapy treatment monitoring with in-beam PET: investigating space and time activity distributions*, Nucl. Inst. and Meth. A 861 (2017) 7176.
6. A Lourenco et al, *Evaluation of the water-equivalence of plastic materials in low- and high-energy clinical proton beams*, Phys Med Biol. 2017 May 21;62(10):3883-3901.
7. L Tommasino al *Model-based approach for quantitative estimates of skin, heart and lung toxicity risk for left-side photon and proton irradiation after breast-conserving surgery*, Acta Oncol. 2017 May;56(5):730-736.
8. Farace P et al, *Supine craniospinal irradiation in pediatric patients by proton pencil beam scanning*. Radiother Oncol. 2017 Apr;123(1):112-118).
9. M Schwarz, GM Cattaneo, L Marrazzo, *Geometrical and dosimetrical uncertainties in hypofractionated radiotherapy of the lung: a review*, Physica Medica (2017), 36:126-139.
10. R Castriconi et al, *Dose response of EBT3 radiochromic films to proton and carbon ion clinical beams* Phys. Med. Biol. 62 (2017) 377393.

11. R Ahmad et al, *Investigation into the effects of high-Z nano materials in proton therapy*, Phys. Med. Biol. 61 (2016) 4537-4550.
12. M Schwarz, S Molinelli, *What can particle therapy add to the treatment of prostate cancer?*, Physica Medica 32 (2016), 485-491.
13. E Scalco et al, *Evaluation of different CT lung anatomies for proton therapy with pencil beam scanning delivery, using a validated non rigid image registration method*. Acta Oncologica, 2015, <http://dx.doi.org/10.3109/0284186X.2015.1105383>.
14. F Fracchiolla et al, *Characterization and validation of a Monte Carlo code for independent dose calculation in proton therapy treatments with pencil beam scanning*, Physics in Medicine and Biology 60(2015) 8601-8619.
15. R Ruggieri et al, *Nasal Cavity Re-irradiation: a challenging case of comparison between Proton Therapy and Volumetric Modulated Arc Therapy Tumori* 2015, DOI: 10.5301/tj.5000375.
16. M Engelsman, M Schwarz, L Dong, *Physics controversies in proton therapy*, Seminars in Radiation Oncology, Vol. 23, No.2, 88-96, 2013.
17. F Fellin et al, *Tomotherapy and intensity modulated proton therapy in the treatment of dominant intraprostatic lesion: a treatment planning comparison*, Radiotherapy and Oncology, 107(2), 207-212, 2013.
18. MC Cantone et al, *Application of Failure Mode and Effects Analysis to treatment planning in scanned proton beam radiotherapy*, Radiation Oncology 8:127, 2013.
19. S Lorentini et al, *IMRT or 3D-CRT in glioblastoma? A dosimetric criterion for patient selection*, Technology in Cancer Research and Treatment, Volume 12 No.5 pp. 411-420, 2013.
20. G Fava et al, *In-gantry or remote patient positioning? Monte Carlo simulations for proton therapy centers of different sizes*, Radiotherapy and Oncology 103, 18-24, 2012.
21. L Widesott, AJ Lomax, M Schwarz, *Is there a single spot size and grid for intensity modulated proton therapy? Simulation of head and neck, prostate and mesothelioma cases*, Medical Physics 39(3), 1298-1308, 2012.
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Book chapters

1. M Schwarz et al *Clinical Pencil Beam Scanning: Present and Future Practices in Particle Radiotherapy - Emerging Technology for Treatment of Cancer* (editors Arabinda Kumar Rath and Narayan Sahoo), ISBN978-81-322-2621-5, 2016, Springer India.
2. D Amelio et al, *Intensity-modulated Radiation Therapy in Newly Diagnosed High-grade Gliomas: Potential, Evidence and Perspectives*, in *Horizons in Cancer Research. Volume 47* (Editor Hiroto S. Watanabe), 2011, Nova Science Publishers, Inc.

Invited talks, seminars and lectures

Selected invited talks over the past five years:

1. Nov 2017 - London - Royal Marsden Hospital - *The physics of protontherapy*
2. Nov 2017 - Pistoia - International day of medical physics - *Technological developments in radiotherapy with photons and protons*
3. Jun 2017 - Heidelberg - German Cancer Research centre (DKFZ) - *Research&Development in protontherapy*
4. Jun 2017 - Verona - AIFM course on "The 4th dimension in radiotherapy" - *Treatment adaptation in protontherapy*
5. Apr 2017 - Milano - International Symposium on Protontherapy - *Physics aspects of protontherapy*
6. Nov 2016 - Dresden (GER) - Oncoray - *Open questions for protontherapy medical physics*
7. Nov 2016 - Milano(IT) - International Symposium on Ion Therapy (ISIT) - *What can we learn from photons and protons physics research?*

8. Oct 2016 - Ustron (POL) - Central European Symposium on Radiation Oncology - *How can protons improve radiation therapy?*
9. Sept 2016 - Athens (GRE) - 1st European Congress of Medical Physics - *Towards adaptive treatments in particle therapy*
10. June 2016 - Technical University Delft(NL) - *Improving protontherapy: where can physicists help?*
11. May 2016 - Torino - ESTRO Congress - *The need for adaptive therapy in protons compared to photons*
12. April 2016 - Philadelphia - Roberts Proton therapy center - *Improving protontherapy: where can medical physics help?*
13. March 2016 - Trento - IBA user meeting physics keynote - *Medical physics challenges in the next few years*
14. October 2015 - Ryadh (UAE) - KFMC Conference on Physics and Engineering in Medicine - *How can protons improve radiation oncology and Clinical implementation of a pencil beam scanning system*
15. September 2015 - Vienna - European Cancer Conference (ECCO) - *How can protons contribute to radiation oncology*
16. November 2014 - London, '4D Treatment planning' workshop, *What would we like for 4D treatment planning?*
17. October 2014 - Erice(IT), III Course on 'Hadrons in therapy and space', *Medical physics of particle therapy*
18. May 2014 - Uppsala(SWE), DOTSKAN meeting *Can we improve treatment planning and delivery of scanned beam proton therapy?*
19. Apr 2014- Vienna, ESTRO Congress - teaching lecture on '*Geometrical uncertainties and treatment planning in protontherapy*'
20. Dec 2013 - Pavia(IT), INFN workshop on 'Status and future perspective of research in charged particle radiotherapy' - *R&D projects in Trento*
21. Nov 2013 - Torino, AIFM congress - *L'ottimizzazione radiobiologica: è più facile di quel che sembra.*
22. Nov 2013 - Kolkata, 34th national conference of the Association for Medical Physics in India (AMPICON) - *Commissioning of a pencil beam scanning proton therapy facility.*
23. Before 2013: 50 invited talks.