

PERSONAL INFORMATION

Radu Hristu

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Sex Male | Date of birth 20/06/1983 | Nationality Romanian

WORK EXPERIENCE

02/2016–Present

Associate lecturer

Physics Department, Univeristy Poliethnica of Bucharest

10/2007–Present

Research assistant

Center for Microscopy-Microanalysis and Information Processing, University Politehnica of Bucharest (Romania)

04/2014–12/2015

PostDoc

Physics Department, University Politehnica of Bucharest (Romania)

07/2005–07/2007

Layout designer

Catalyst Semiconductor Romania, Bucharest

EDUCATION AND TRAINING

12/2012

Super Resolution Intensive Practical School

Italian Institute of Technology, Genoa (Italy)

09/2009

Summer School on Photonics

Fresnel Institute (France)

2007–2012

PhD in Electronics

University Politehnica of Bucharest (Romania)

Studies on photonic quantum ring semiconductor laser structures and on semiconductor materials and nanocrystals using laser scanning microscopy techniques

2002–2007

Electronics Engineer

Faculty of Electronics, Telecommunications and Information Technology, University Politehnica of Bucharest (Romania)

Optoelectronics

ADDITIONAL INFORMATION

Research interests

laser scanning microscopy, scanning probe microscopy, nonlinear optical microscopy, super-resolution microscopy, biophotonics, optics

Publications**R. Hristu**, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: *Improved quantification of collagen anisotropy*

with polarization-resolved second harmonic generation microscopy, *Journal of Biophotonics*, DOI: 10.1002/jbio.201600197

S.L. Iconaru, A.M. Prodan, C.S. Turculeț, M. Beuran, R.V. Ghita, A. Costescu, A. Groza, M.C. Chifiriuc, P. Chapon, S. Gaiaschi, **R. Hristu**, G. A. Stanciu, R. Trusca, M. Ganciu, S. M. Raita, N. Vineticu, C.S. Ciobanu, *Enamel based composite layers deposited on titanium substrate with antifungal activity*, *Journal of Spectroscopy*, DOI: 10.1155/2016/4361051 (2016).

I.A. Kartsonakis, S.G. Stanciu, A.A. Matei, **R. Hristu**, A. Karantonis, C.A. Charitidis, *A comparative study of corrosion inhibitors on hot-dip galvanized steel*, *Corrosion Science* 112, 289-307 (2016).

S.G. Stanciu, D.E. Tranca, C. Ruggiero, G.A. Stanciu, E. Dellacasa, A. Antipov, **R. Hristu**, L. Pastorino, *Combined far-field, near-field and topographic imaging of nano engineered polyelectrolyte capsules*, *Materials Letters* 183, 105-108 (2016).

D.E. Tranca, S.G. Stanciu, **R. Hristu**, C. Stoichita, S. A. M. Tofail, G.A. Stanciu: *Nanoscale Mapping of Dielectric Function by scattering Scanning Near-Field Optical Microscopy*. *Imaging and Microscopy* 18 (1), pp. 40-42 (2016)

S.G. Stanciu, D.E. Tranca, G.A. Stanciu, **R. Hristu**, J.M. Bueno: *Perspectives on Combining Nonlinear Laser Scanning Microscopy and Bag-Of-Features Data Classification Strategies for Automated Disease Diagnostics*. *Optical and Quantum Electronics* 48(6), pp. 1-13 (2016)

S.G. Stanciu, M. Costache, D.E. Tranca, **R. Hristu**, M. Popescu, G.A. Stanciu: *Towards Imaging Skin Cancer by Apertureless Scanning Near-Field Optical Microscopy*, *University Politehnica of Bucharest Scientific Bulletin-Series A-Applied Mathematics and Physics* 78(2), pp. 235-244 (2016).

I.C. Dragoi, S.G. Stanciu, **R. Hristu**, H.G. Coanda, D.E. Tranca, M. Popescu, D. Coltuc: *Embedding complementary imaging data in laser scanning microscopy micrographs by reversible watermarking*. *Biomedical Optics Express* 7(4), pp. 1127-1137 (2016).

D.E. Tranca, E. Sanchez-Ortiga, G. Saavedra, M. Martinez-Corral, S.A.M. Tofail, S.G. Stanciu, **R. Hristu**, G.A. Stanciu: *Mapping electron-beam-injected trapped charge with scattering scanning near-field optical microscopy*. *Optics Letters* 41(5), pp. 1046-1049 (2016).

R. Hristu, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: *Electron beam influence on the carbon contamination of electron irradiated hydroxyapatite thin films*. *Applied Surface Science* 346, pp. 342-347 (2015).

D.E. Tranca, S.G. Stanciu, **R. Hristu**, C. Stoichita, S.A.M. Tofail, G.A. Stanciu: *High-resolution quantitative determination of dielectric function by using scattering scanning near-field optical microscopy*. *Scientific Reports* 5, 11876 (2015).

C.S. Ciobanu, A.Groza, S.L. Iconaru, C.L. Popa, P. Chapon, M.C. Chifiriuc, **R. Hristu**, G.A. Stanciu, C.C. Negrița, R. Ghita, M. Ganciu, D. Predoi: *Antimicrobial activity evaluation on silver doped hydroxyapatite/polydimethylsiloxane composite layer*. *BioMed Research International*, 926513 (2015).

I.A. Kartsonakis, S.G. Stanciu, A.A. Matei, E.K. Karaxi, **R. Hristu**, A. Karantonis, C.A. Charitidis: *Evaluation of the protective ability of typical corrosion inhibitors for magnesium alloys towards the Mg ZK30 variant*. *Corrosion Science* 100, pp. 194-208 (2015).

A.A. Matei, I. Pencea, S.G. Stanciu, **R. Hristu**, I. Antoniac, E. Ciovisa, C.E. Sfat, G.A. Stanciu: *Structural characterization and adhesion appraisal of TiN and TiCN coatings deposited by CAE-PVD technique on a new carbide composite cutting tool*. *Journal of Adhesion Science and Technology* 29(23), pp. 2576-2589 (2015).

I. Capan, M. Erdogan, B. Guner, B. Ilhan, S.G. Stanciu, **R. Hristu**, G.A. Stanciu: *Gas Sensing Properties of Porphyrin Thin Films Influenced by Their Surface Morphologies*. *Sensor Letters* 12(8), pp. 1218-1227 (2014).

M. Bilcu, A.M. Grumezescu, A.E. Oprea, R.C. Popescu, G.D. Mogosanu, **R. Hristu**, G.A. Stanciu, D.E. Mihailescu, V. Lazar, E. Bezirtzoglou, M.C. Chifiriuc: *Efficiency of Vanilla, Patchouli and Ylang Ylang Essential Oils Stabilized by Iron Oxide@C14 Nanostructures against Bacterial Adherence and Biofilms Formed by Staphylococcus aureus and Klebsiella pneumoniae Clinical Strains*. *Molecules* 19, pp. 17943-17956 (2014).

D. E. Tranca, C. Stoichita, **R. Hristu**, S. G. Stanciu, G. A. Stanciu: *A study on the image contrast of pseudo-heterodyned scattering scanning near-field optical microscopy*. *Optics Express* 22(2), pp. 1687-1696 (2014).

R. Hristu, D. E. Tranca, S. G. Stanciu, M. Gregor, T. Plecenik, M. Truchly, T. Roch, S. A. M. Tofail, G. A. Stanciu: *Surface charge and carbon contamination on an electron beam irradiated hydroxyapatite thin film investigated by photoluminescence and phase imaging in atomic force microscopy*.

Microscopy and Microanalysis 20(2), pp. 586-595 (2014).

R. Hristu, S. G. Stanciu, D. E. Tranca, A. Matei, G. A. Stanciu: *Nonlinear optical imaging of defects in cubic silicon carbide epilayers*. Scientific Reports 4, 5258 (2014).

M.C. Chifiriuc, A.M. Grumezescu, C. Saviuc, **R. Hristu**, V. Grumezescu, C. Bleotu, G. Stanciu, D.E. Mihaiescu, E. Andronescu, V. Lazar, R. Radulescu: *Magnetic Nanoparticles for Controlling in vitro Fungal Biofilms*. Current Organic Chemistry 17(10), pp. 1023-1028 (2013).

A.M. Grumezescu, M.C. Chifiriuc, C. Saviuc, V. Grumezescu, **R. Hristu**, D.E. Mihaiescu, G.A. Stanciu, E. Andronescu: *Hybrid Nanomaterial for Stabilizing the Antibiofilm Activity of Eugenia caryophyllata Essential Oil*. IEEE Transactions on Nanobioscience 11(4), pp. 360-365 (2012).

I. Capan, M. Erdogan, G.A. Stanciu, S.G. Stanciu, **R. Hristu**, M. Goktepe: *The interaction between the gas sensing and surface morphology properties of LB thin films of porphyrins in terms of the adsorption kinetics*. Materials Chemistry and Physics 136(2-3), pp. 1130-1136 (2012).

R. Hristu, S.G. Stanciu, G.A. Stanciu, I. Capan, B. Guner, M. Erdogan: *Influence of atomic force microscopy acquisition parameters on thin film roughness analysis*. Microscopy Research and Technique 75(7), pp. 921-927 (2012).

R. Hristu, S.G. Stanciu, F.J. Kao, G.A. Stanciu: *Two-photon excited photoluminescence of photonic quantum ring laser structures*. Applied Physics B: Lasers and Optics 107(1), pp. 97-101 (2012).

R. Hristu, G.A. Stanciu: *Imaging of photonic quantum ring lasers by using optical beam induced current microscopy*. University Politehnica of Bucharest Scientific Bulletin-Series A-Applied Mathematics and Physics 74(2), pp. 123-130 (2012).

A.M. Grumezescu, C. Saviuc, M.C. Chifiriuc, **R. Hristu**, D.E. Mihaiescu, P. Balaure, G. Stanciu, V. Lazar: *Inhibitory Activity of Fe₃O₄/Oleic Acid/Usnic Acid-Core/Shell/Extra-Shell Nanofluid on S. aureus Biofilm Development*. IEEE Transactions on Nanobioscience 10(4), pp. 269-274 (2011).

C. Saviuc, A.M. Grumezescu, M.C. Chifiriuc, C. Bleotu, G.A. Stanciu, **R. Hristu**, D. Mihaiescu, V. Lazar: *In vitro methods for the study of artificial fungal biofilms*. Biointerface Research in Applied Chemistry 1(1), pp. 31-40 (2011).

A.M. Grumezescu, C. Saviuc, A. Holban, **R. Hristu**, C. Croitoru, G.A. Stanciu, C. Chifiriuc, D. Mihaiescu, P. Balaure, V. Lazar: *Magnetic chitosan for drug targeting and in vitro drug delivery response*. Biointerface Research in Applied Chemistry 1(5), pp. 160-165 (2011)

D. Cayci, S.G. Stanciu, I. Capan, M. Erdogan, B. Guner, **R. Hristu**, G.A. Stanciu: *The influence of the surface morphologies of Langmuir Blodgett (LB) thin films of porphyrins on their gas sensing properties*. Sensors and Actuators B:Chemical 158(1), pp. 62-68 (2011).

S.G. Stanciu, **R. Hristu**, G.A. Stanciu: *Digital Image inpainting and Microscopy Imaging*. Microscopy Research and Technique 74(11), pp. 1049-1057 (2011).

C. Saviuc, A.M. Grumezescu, C.M. Chifiriuc, D.E. Mihaiescu, **R. Hristu**, G. Stanciu, E. Oprea, V. Radulescu, V. Lazar: *Hybrid Nanosystem for Stabilizing Essential Oils in Biomedical Applications*. Digest Journal of Nanomaterials and Biostructures 6(4), pp. 1657-1666 (2011).

R. Hristu, S.G. Stanciu, S.J. Wu, F.J. Kao, O. Kwon, G.A. Stanciu: *Optical beam induced current microscopy of photonic quantum ring lasers*. Applied Physics B: Lasers and Optics 103(3), pp. 653-657 (2011).

S.G. Stanciu, **R. Hristu**, G.A. Stanciu: *Influence of Confocal Scanning Laser Microscopy specific acquisition parameters on the detection and matching of Speeded-Up Robust Features*. Ultramicroscopy 111(5), pp. 364-374 (2011).

S.G. Stanciu, **R. Hristu**, R. Boriga, G.A. Stanciu: *On the Suitability of SIFT Technique to Deal with Image Modifications Specific to Confocal Scanning Laser Microscopy*. Microscopy and Microanalysis 16(5), pp. 515-30 (2010).

C. Saviuc, L. Dascalu, M.C. Chifiriuc, V. Radulescu, E. Oprea, M. Popa, **R. Hristu**, G.A. Stanciu, V. Lazar: *The inhibitory activity of pomelo essential oil on the bacterial biofilms development on soft contact lenses*. Roumanian Archives of Microbiology and Immunology 69(3), pp. 145-152 (2010).

N. Dutta, D. Mohanta, G.A. Ahmed, A. Choudhury, **R. Hristu**, S.G. Stanciu, G.A. Stanciu: *Two Photon Emission and Nonlinear Optical Imaging of Acetonitrile-Treated Quasi-Spherical Nanoscale PbS Systems*. IEEE Photonics Journal 2(6), pp. 1060-1068 (2010).

Conferences

R. Hristu, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: International Conference on Advanced Laser Technologies 2016, Galway, Ireland.

R. Hristu, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: *Anisotropy evaluation in polarization second harmonic generation imaging of collagen in histopathological samples*. International conference on

photoexcited processes and applications 2016, Brasov, Romania.

D.E. Tranca, S.G. Stanciu, C. Stoichita, **R. Hristu**, S.A.M. Tofail, G.A. Stanciu: *Investigations on image contrast in pseudo-heterodyne scattering scanning near-field optical microscopy*. Focus on Microscopy 2015, Gottingen, Germany.

R. Hristu, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: *Interrelationship between electron-beam-induced surface charge and carbon contamination on hydroxyapatite*. Focus on Microscopy 2015, Gottingen, Germany.

S.G. Stanciu, C. Stoichita, **R. Hristu**, D.E. Tranca, G.A. Stanciu: *A Platform for Micro- and Nanoscale Optical Imaging Using Complementary Contrast Mechanisms*. 15th annual meeting of the European Light Microscopy Initiative 2015, Sitges, Spain.

S.G. Stanciu, C. Stoichita, **R. Hristu**, D.E. Tranca, G.A. Stanciu: *Combined Multimodal Imaging at Micro- and Nanoscale Using Complementary Contrast Mechanisms*. EuroNanoForum 2015, Riga, Latvia.

S.G. Stanciu, **R. Hristu**, D.E. Tranca, G.A. Stanciu: *Bags-of-Features for classification of Laser Scanning Microscopy Data*. International Conference on Transparent Optical Networks 2015, Budapest, Hungary.

C. Dragoi, S.G. Stanciu, D. Coltuc, D.E. Tranca, **R. Hristu**, G.A. Stanciu: *On Packing Laser Scanning Microscopy Images by Reversible Watermarking: a Case Study*, 23rd IEEE European Signal Processing Conference 2015, Nice, France.

S.G. Stanciu, **R. Hristu**, D.E. Tranca, G.A. Stanciu, J.M. Bueno: *Combining Multiphoton Laser Scanning Microscopy and Bag-of-Features Image Classification for Automated Disease Diagnosis*, International Conference on Advanced Laser Technologies 2015, Faro, Portugal.

R. Hristu, S. A. M. Tofail, S. G. Stanciu, D. E. Tranca, G. A. Stanciu: *Hydroxyapatite surface charge investigated by scanning probe microscopy*. International Conference on Transparent Optical Networks 2014, Graz, Austria.

S. G. Stanciu, D. E. Tranca, L. Tarpani, G. A. Stanciu, **R. Hristu**, L. Latterini, *Investigations on organic fluorophore doped silica nanoparticles by apertureless scanning near-field optical microscopy*, International Conference on Transparent Optical Networks 2014, Graz, Austria.

G.A. Stanciu, D.E. Tranca, **R. Hristu**, C. Stoichita, S.G. Stanciu: *Scattering scanning near field optical microscopy used for nanoscale investigations*. International Conference on Laser Applications in Life Sciences 2014, Ulm, Germany.

S.G. Stanciu, M. Popescu, **R. Hristu**, V. Enache, D.E. Tranca, G.A. Stanciu: *Investigations on skin cancers by nonlinear optical microscopy*. Focus on Microscopy 2013, Maastricht, The Netherlands.

G.A. Stanciu, D.E. Tranca, **R. Hristu**, C. Stoichita, S.G. Stanciu: *Investigations at nanoscale by using fluorescence in apertureless scanning near field microscopy*. International Conference on Transparent Optical Networks 2013, Cartagena, Spain.

R. Hristu, C. Stoichita, S.G. Stanciu, D.E. Tranca, A.A. Gandhi, S.A.M. Tofail, G.A. Stanciu: *Far and Near Field-Probing of Electrostatic Domains on Nanocrystalline Hydroxyapatite*. EuroNanoForum 2013, Dublin, Ireland.

R. Hristu, S. G. Stanciu, D. E. Tranca, G. A. Stanciu: *Imaging of the Rayleigh toroid in a photonic quantum ring laser by using laser scanning microscopy techniques*. International Conference Micro- to Nano- Photonics 2012, Bucharest, Romania.

D.E. Tranca, **R. Hristu**, S.G. Stanciu, G.A. Stanciu: *Scattering near-field optical microscopy for gold nano-particles investigations*. Workshop on Super-resolution and Life Sciences, 2012, Brasov, Romania.

R. Hristu, S.G. Stanciu, D.E. Tranca, G.A. Stanciu: *Optical and morphological characterization of electron beam created surface potential microdomains on hydroxyapatite coatings*. Workshop on Super-resolution and Life Sciences, 2012, Brasov, Romania.

G.A. Stanciu, C. Stoichita, **R. Hristu**, S.G. Stanciu, D.E. Tranca: *Metallic samples investigated by using a scattering near field optical microscope*. International Conference on Transparent Optical Networks 2012, Coventry, United Kingdom.

G.A. Stanciu, **R. Hristu**, S.G. Stanciu, D.E. Tranca, E.K. Polychroniadis: *Nonlinear effects in scanning laser microscopy used to investigate silicon carbide polytypes*. Focus on Microscopy, Singapore, 2012.

S.G. Stanciu, D. Coltuc, **R. Hristu**, D.E. Tranca, G.A. Stanciu: *Enhancing local feature matching between CSLM images by histogram modeling*. Focus on Microscopy, Singapore, 2012.

G.A. Stanciu, **R. Hristu**, S. G. Stanciu, D.E. Tranca, T. Plecenik, M. Gregor, T. Roch, A. Plecenick, S.A.M Tofail: *Electrical charge on the hydroxyapatite surface investigated by laser scanning*

microscopy. Optics Within Life Sciences 2012, Genoa, Italy.

R. Hristu, E.K. Polychroniadis, S.G. Stanciu, G.A. Stanciu: *Investigations on SiC by using nonlinear effects in scanning laser microscopy*. International Conference on Transparent Optical Networks 2011, Stockholm, Sweden.

R.Hristu, S.G.Stanciu, G.A.Stanciu: *Two photon excitation imaging used to investigate photonic quantum ring lasers*. Focus on Microscopy 2011, Konstanz, Germany.

S.G.Stanciu, **R.Hristu**,G.A.Stanciu: *Completing Missing or Damaged Regions in Microscopy Images by Inpainting*. Focus on Microscopy 2011, Konstanz, Germany.

G.A. Stanciu, **R. Hristu**, S.G. Stanciu, O. Kwon, D.K. Kim: *Optical induced current technique used to investigate the photonic quantum ring laser*. International Conference on Transparent Optical Networks 2010, Munich, Germany.

S.G. Stanciu, **R. Hristu**, R. Boriga, G.A. Stanciu: *Feature Based Recognition of Photonic Devices in Images Obtained by Confocal Scanning Laser Microscopy*. International Conference on Transparent Optical Networks 2010, Ponta Delgada, Azores, Portugal.

S.G.Stanciu, **R.Hristu**, G.A.Stanciu: *Optical Properties of the Materials Investigated at Nanoscale Resolution by using Apertureless Scanning Near Optical Microscopy*. FEMS Junior Euromat Conference 2010, Lausanne, Switzerland.

C. Stoichita, **R. Hristu R.**, S.G. Stanciu, G.A. Stanciu: *Near field investigation based on a novel apertureless near field optical microscope*. International Conference on Transparent Optical Networks - Mediterranean Winter 2009, Angers, France.

S.G. Stanciu, D. Coltuc, **R. Hristu**, C. Stoichita, G.A. Stanciu: *Image fusion for photonic quantum ring laser structures investigated by confocal scanning laser microscopy*. International Conference on Transparent Optical Networks - Mediterranean Winter 2009, Angers, France.

R.Hristu, S.G.Stanciu, G.A.Stanciu: *Nonlinear optical effects in semiconductor quantum dots*. Materials Science and Engineering 2008, Nuremberg, Germany.

G.A. Stanciu, S.G. Stanciu, **R. Hristu**, O. Kwon, D.K. Kim: *Investigation on photonic-coral-mode quantum ring lasers by laser scanning microscopy*. International Conference on Transparent Optical Networks 2008, Athens, Greece.

G.A. Stanciu, S.G. Stanciu, **R. Hristu**, D.K. Kim, O. Kwon: *Photonic-Coral-Mode Quantum Ring Lasers investigated by Laser Scanning Microscopy and Near Field Microscopy*. International Conference on Transparent Optical Networks - Mediterranean Winter 2008, Marrakech, Morocco.

S.G. Stanciu, **R. Hristu**, G.A. Stanciu: *Semiconductor Quantum Dots Investigated by X-Ray Diffraction, Scanning Laser Microscopy and Atomic Force Microscopy*. Junior Euromat Conference 2008, Lausanne, Switzerland.

S.G. Stanciu, **R. Hristu**, B. Savu, G.A. Stanciu, D. Mohanta, G.A.Ahmed, A. Choudhury: *Investigation on CdS:Mn quantum dots using scanning laser microscopy*, International Conference on Transparent Optical Networks - Mediterranean Winter 2007, Sousse, Tunisia.

Projects

National

2007 -2010 Active-adaptive optic metrology research for nanosciences and nanotechnologies for adaptive digital holography (MAST)

2007-2010 Studies regarding interaction mechanisms between laser and radio-frequency radiation with the superior aero-digestive tissues and the development of therapeutic protocols (LARFMED)

2007-2010 Studies of modifications introduced in zirconia, spinel and SiC by ion implantation and thermal treatments by using IBA and other advanced techniques (CERNUCL)

2007-2010 Impact of environmental factors to the formation dynamics and structural behaviour of temporary teeth (MEDSTOMA)

2009-2011 Developments of new investigation techniques in scanning optical microscopy and their applications

2012-2016 Innovative method and system for the detection of drug traces by plasma-laser assisted mass spectroscopy (ISPLAMS) – **partner leader**

2012-2016 New methods and investigation protocols for the early diagnosis, efficient screening, prognostic and therapy of non-melanoma skin cancers based on existing and novel micro&nano optical tools (NANOLASCAN)

2015-2017 Correlation and integration of microscopy and nanoscopy data by advanced computer vision methods (MICRONANO)

2014-2015 (POSDRU 132397) Post-doctoral research fellowship: Integrated microscopy combining laser scanning and probe scanning techniques – ***principal investigator***

International

2008-2011 (EU FP7) Electrically modified biomaterials surface: from atoms to applications (BioElectricSurface)

2010-2011 Bilateral scientific cooperation Romania-Turkey: The influence of the surface properties of the nano-organic thin films on their gas sensing mechanisms investigated by using high resolution techniques (NAFIGA)

2011-2012 Bilateral scientific cooperation Romania-Slovakia: Development of the investigation method for inorganic thin films by using high resolution methods

2012-2015 (EU FP7) Real time label free nanoscopy using infrared absorption (LANIR)