David Novoa Fernandez

Personal Information

Date of birth	August 18^{th}, 1983
Place of birth	Ourense, Spain
Nationality	Spanish
Marital status	Married, one daughter
Office address	Department of Communications Engineering, Engineering School of Bilbao, University of the Basque Country, Torres Quevedo 1, 48013 Bilbao, Spain
Phone	+34 – 946014114
Email	david.novoa@ehu.eus

Education

2006 – 2011 **PhD in Physics (European Mention)**, *University of Vigo*, Spain.
- **Thesis:** *Novel soliton dynamics and phase transitions in coherent optical and matter systems*
  Supervisors: Prof. Humberto Michinel and Prof. Daniele Tommasini

2007 – 2008 **M.Sc. in Photonics and Laser Technologies**, *Joint program of the Universities of Santiago de Compostela, A Coruña and Vigo*, Spain.

2006 – 2008 **Certificate of Advanced Studies**, *University of Vigo*, Spain.

2001 – 2006 **Bs.C in Physics**, *University of Vigo*, Spain.

Professional experience

2021 – Currently **Visiting Professor**, *University of the Basque Country (UPV/EHU)*, Bilbao, Spain.

2021 – Currently **Ikerbasque Research Fellow**, *Basque Foundation for Science*, Bilbao, Spain.

2017 – 2021 **W2 Associate Research Professor**, *Max-Planck Institute for the Science of Light*, Erlangen, Germany.

2013 – 2017 **Postdoctoral scientist**, *Russell division at the Max-Planck Institute for the Science of Light*, Erlangen, Germany.

2011 – 2012 **Postdoctoral researcher**, *Centre for Ultrashort Ultraintense Pulsed Lasers (CLPU)*, Salamanca, Spain.

2008 – 2010 **Invited Professor**, *University of Vigo*, Spain.

Grants and Awards

2021 – 2026 **Ikerbasque Research Fellow**, *Basque Foundation for Science*, Bilbao, Spain.

2017 – 2021 **W2 Associate Research Professor position**, *Max-Planck Institute for the Science of Light*, Erlangen, Germany.

2015 – 2027 **Postdoctoral scientist position**, *Max-Planck Institute for the Science of Light*, Erlangen, Germany.
I turned this unusually long position down as a result of my appointment as W2 group leader

2015 – 2017 **Postdoctoral fellowship "Juan de la Cierva"**, *Spanish Ministry of Economy and Competitiveness*, Spain.
Declined

2013 – 2015 **Postdoctoral fellowship**, *Max-Planck Society*, Erlangen, Germany.

2012 **Award to the most outstanding PhD thesis in Physics**, *University of Vigo*, Spain.

2011 – 2012 **Contract as postdoctoral researcher**, *CLPU*, Salamanca, Spain.

2009 **Grant for research visits abroad**, *Spanish Ministry of Education and Science*, Spain.

2008 – 2011 **Predoctoral program "Maria Barbeito"**, *Galician regional government*, Spain.

2007 – 2010 **Several grants to attend national and international scientific meetings**, *Galician regional government and University of Vigo*, Spain.

2006 – 2008 **Grant for PhD studies**, *Galician regional government*, Spain.

2005 – 2006 **Grant for collaboration in research activities**, *Spanish Ministry of Education and Science*, Spain.

Full-time supervision of PhD students

PhD graduate: Dr. Sebastian Bauerschmidt.
- **Thesis:** *Parametric control of Raman scattering in hollow-core PCF*
  University of Erlangen-Nürnberg/MPL, February 2016

PhD graduate: Dr. Marco Cassataro.
- **Thesis:** *Mid-infrared nonlinear optics in gas-filled hollow-core photonic-crystal fiber*
  University of Erlangen-Nürnberg/MPL, December 2017

PhD graduate: Dr. Pooria Hosseini.
- **Thesis:** *Transient and impulsive Raman scattering in hollow-core photonic crystal fiber*
  University of Erlangen-Nürnberg/MPL, July 2018

PhD graduate: Dr. Manoj K. Mridha.
- **Thesis:** *Ultraviolet Raman scattering in hollow-core photonic crystal fiber*
  University of Erlangen-Nürnberg/MPL, November 2018

PhD graduate: Dr. Sona Davtyan.
- **Thesis:** *Angular momentum control via Raman conversion in twisted gas-filled photonic crystal fibre*
  University of Erlangen-Nürnberg/MPL, January 2021

Career summary and research interests

I obtained my PhD degree at the University of Vigo under supervision of Prof. Humberto Michinel (President elect of the European Optical Society) and Prof. Daniele Tommasini. My PhD thesis entitled *Novel soliton dynamics in coherent optical and matter systems* comprised a collection of theoretical and numerical studies dealing with the description of new types of spatial optical solitons in highly nonlinear optical materials (the so-called *liquid light condensates*, recently observed experimentally) and matter-wave solitons in ultracold dilute gases. During the last years of my pre-doctoral period, I started an experimental research line for the characterisation of the nonlinear response of new materials (e.g., ionic liquids and composites for organic light emitting diodes) using high-repetition-rate ultrafast laser sources. After my PhD defense in July 2011, I obtained a competitive position as postdoctoral researcher in the newly-funded Centre for Ultrashort Ultraintense Laser Pulses (Salamanca, Spain), a facility hosting a petawatt-class ultrafast laser system (in the top-10 of the most intense lasers in the world), to carry out experimental and theoretical studies on strongly nonlinear light-matter interactions in gases. Among other developments, from the theoretical side we proposed a novel type of all-optical pressure gauge for extreme

vacuum based on photoionisation and nonlinear scattering of ultraintense laser pulses. From the experimental side, we developed novel strategies to obtain few-cycle pulses in the mid-infrared based on ultrafast filamentation. Furthermore, we also studied the possibility of observing signatures of photon-photon scattering in vacuum using ultraintense near-infrared lasers. At the same time, I realised the first experimental demonstration of the transmutation of highly-charged optical vortices (a type of optical beam carrying orbital angular momentum) into deterministic spatial patterns of phase singularities using simple diffractive optical elements with discrete symmetry. Looking for new challenges, in January 2013 I moved to Germany as a postdoctoral research fellow in the Russell Division of the Max Planck Institute for the Science of Light. In 2015 I was awarded a prestigious early-career grant "Juan de la Cierva" to return to Spain, which I declined since I was simultaneously offered an unusually long extension to my position at the Max-Planck Institute (until 2027). Furthermore, in August 2017 I was appointed to a W2 Associate Research Professor position (non-permanent post) owing to my outstanding research success at MPL. In the past few years my main research interests have been focused on experimental and theoretical studies of highly nonlinear laser-matter interactions in waveguide geometries such as gas-filled hollow-core photonic crystal fibres. In particular, we intensively work on the development of new coherent light sources and photonic devices with unparalleled performance in the vacuum/deep ultraviolet and mid-infrared spectral domains, and their applications in time-resolved molecular spectroscopy and photochemistry. I have recently obtained an Ikerbasque Research Fellowship, a prestigious post from the Basque foundation for Science, to perform independent cutting-edge research on the science and applications of hollow-core fibre technology using state-of-the-art technological developments and machine learning strategies.

10 selected research highlights

- Proposal and analysis of the properties of the *liquid light condensate*: a new state of light characterised by the acquisition of surface tension. It has been recently demonstrated experimentally
- Proposal of a novel all-optical way to measure extreme high vacuum using petawatt-class lasers
- First experimental demonstration of controllable optical vortex transmutation using simple optical elements with discrete symmetry
- First experimental demonstration of all-single-mode, collinear frequency conversion based on Raman molecular modulation of arbitrary optical signals with record high efficiency (in excess of 80%)
- World-first vacuum ultraviolet-to-visible Raman frequency comb
- Proposal and realization of plasma-induced resonant radiation in the mid-infrared
- Demonstration of strong-field-driven supercontinuum generation spanning over 4.7 octaves from the vacuum ultraviolet (140 nm) to the mid-infrared (4.5 μm)
- Demonstration of the first ultrafast mid-infrared supercontinuum generated in the recently developed single-ring hollow-core PCF
- First experimental evidence of self-compression and thresholdless frequency conversion of ultraviolet light in a waveguide
- Demonstration of a table-top phase-stable ultrafast light source with a bandwidth covering 7 octaves from the UV to the THz domain and brightness higher than that of a synchrotron

Scientific publications

- 41 publications in top-ranked peer-reviewed journals + 2 preprints
- 17 invited talks/seminars at international meetings and research institutions
- 80 contributions to relevant international scientific meetings
- 1 book chapter
- ResearcherID profile: http://www.researcherid.com/rid/E-7062-2017
- Google Scholar profile: https://scholar.google.de/citations?user=gXyFHkgAAAAJ&hl=en&oi=ao

Journal publications

1 ***Supersolitons: solitonic excitations in atomic soliton chains***, ***D. Novoa***, *B. A. Malomed, H. Michinel and V. M. Pérez-García*, Phys. Rev. Lett., **101**, 144101 (2008).
Cover of the issue

2 ***Non-quantum liquefaction of coherent gases***, ***D. Novoa***, *H. Michinel, D. Tommasini and M. I. Rodas-Verde*, Physica D: Nonlin. Phenom., **238**, 1490 (2009).

3 ***Pressure, Surface Tension and Dripping of Self-Trapped Laser Beams***, ***D. Novoa***, *H. Michinel and D. Tommasini*, Phys. Rev. Lett., **103**, 023903 (2009).

4 ***Continuous atom laser with Bose-Einstein condensates involving three-body interactions***, *A. V. Carpentier, H. Michinel, D. N. Olivieri and* ***D. Novoa***, J. Phys. B: At. Mol. and Opt. Phys., **43**, 105302 (2010).

5 ***Filamentation processes and dynamical excitation of light condensates in optical media with competing nonlinearities***, ***D. Novoa***, *H. Michinel, D. Tommasini and A. V. Carpentier*, Phys. Rev. A, **81**, 043842 (2010).

6 ***Fermionic Light in Common Optical Media***, ***D. Novoa***, *H. Michinel and D. Tommasini*, Phys. Rev. Lett., **105**, 203904 (2010).
Selected for a PR-Focus story: http://focus.aps.org/story/v26/st19

7 ***Nonlinear waves in optics and ultracold atomic gases***, *A. V. Carpentier, J. A. Novoa-López, M. Gómez-Cid, M. Martínez-Valado, H. Michinel,* ***D. Novoa***, *D. Tommasini and J. R. Salgueiro*, Óptica Pura y Aplicada, **44**, 511 (2010).

8 ***Coherent atomic soliton molecules for matter-wave switching***, *C. Yin, N. G. Berloff, V. M. Pérez-García,* ***D. Novoa***, *A. V. Carpentier and H. Michinel*, Phys. Rev. A: Rapid Commun., **83**, 051605(R) (2011).

9 ***Ultrasolitons: multistability and subcritical power threshold from higher-order Kerr terms***, ***D. Novoa***, *D. Tommasini and H. Michinel*, Europhys. Lett., **98**, 44003 (2012).

10 ***Measuring extreme vacuum pressure with ultraintense lasers***, *A. Paredes,* ***D. Novoa*** *and D. Tommasini*, Phys. Rev. Lett., **109**, 253903 (2012).

11 ***Dynamical generation of interwoven soliton trains by nonlinear emission in binary Bose-Einstein condensates***, *V. A. Brazhnyy,* ***D. Novoa*** *and C. P. Jisha*, Phys. Rev. A, **88**, 013629 (2013).

12 ***The key role of off-axis singularities in free-space vortex transmutation***, ***D. Novoa***, *I. J. Sola, M. A. García-March and A. Ferrando*, Appl. Phys. B: Lasers and Opt., **116**, 779 (2014).

13 ***Optimized photonic gauge of extreme high vacuum with petawatt lasers***, *A. Paredes,* ***D. Novoa***, *D. Tommasini and H. Mas*, J. Phys. B: At. Mol. and Opt. Phys., **47**, 065601 (2014).

14 ***Multistability and spontaneous breaking in pulse-shape symmetry in fiber ring cavities***, *M. J. Schmidberger,* ***D. Novoa***, *F. Biancalana, P. St.J. Russell and N. Y. Joly*, Opt. Express, **22**, 3045 (2014).

15 ***Selective excitation of higher order modes in hollow-core PCF via prism-coupling***, *B. M. Trabold,* ***D. Novoa***, *A. Abdolvand and P. St.J. Russell*, Opt. Lett., **39**, 3736 (2014).

16 ***Supercontinuum up-conversion via molecular modulation in gas-filled photonic crystal fibers***, *S. T. Bauerschmidt,* ***D. Novoa***, *B. Trabold, A. Abdolvand and P. St.J. Russell*, Opt. Express, **22**, 20566 (2014).

17 ***Self-induced mode mixing of ultraintense lasers in vacuum***, *A. Paredes,* ***D. Novoa*** *and D. Tommasini*, Phys. Rev. A, **90**, 063803 (2014).

18 ***Modulational instability windows in the nonlinear Schrödinger equation involving higher-order Kerr responses***, ***D. Novoa***, *D. Tommasini and J. A. Novoa-López*, Phys. Rev. E, **91**, 012904 (2015).

19 ***Broadband-tunable LP_{01} mode frequency shifting by Raman coherence waves in hydrogen-filled hollow-core PCF***, *S. T. Bauerschmidt,* ***D. Novoa***, *A. Abdolvand and P. St.J. Russell*, Optica, **2**, 536 (2015).

20 ***Photoionization-induced emission of tunable few-cycle mid-IR dispersive waves in gas-filled hollow-core photonic crystal fibers***, ***D. Novoa***, *M. Cassataro, J. C. Travers and P. St.J. Russell*, Phys. Rev. Lett., **115**, 033901 (2015).

21 ***Dramatic Raman gain suppression in the vicinity of the zero dispersion point in gas-filled hollow-core photonic crystal fiber***, *S. T. Bauerschmidt,* ***D. Novoa*** *and P. St.J. Russell*, Phys. Rev. Lett., **115**, 243901 (2015).

22 ***Generation of a VUV-to-visible Raman frequency comb in H_2-filled kagomé photonic crystal fiber***, *M. K. Mridha,* ***D. Novoa****, S. T. Bauerschmidt, A. Abdolvand and P. St.J. Russell*, Opt. Lett., **41**, 2811 (2016).

23 ***Resolving the mistery of mW-threshold optomechanical self-oscillation in dual nanoweb fiber***, *J. R. Koehler, R. E. Noskov, A. Butsch, A. A. Sukhorukov,* ***D. Novoa*** *and P. St.J. Russell*, APL Photonics, **1**, 056101 (2016).

24 ***Universality of Coherent Raman Gain Suppression in Gas-Filled Broadband-Guiding Photonic Crystal Fibers***, *P. Hosseini, M. K. Mridha,* ***D. Novoa****, A. Abdolvand and P. St.J. Russell*, Phys. Rev. Applied, **7**, 034021 (2017).

25 ***Generation of broadband mid-IR and UV light in gas-filled single-ring hollow-core PCF***, *M. Cassataro,* ***D. Novoa****, M. C. Günendi, N. Edavalath, M. H. Frosz, J. C. Travers and P. St.J. Russell*, Opt. Express, **25**(7), 7637 (2017).

26 ***Fresnel-reflection-free, self-aligning, nanospike-based interface between step-index fiber and hollow-core PCF gas cell***, *R. Pennetta, S. Xie, F. Lenahan, M. K. Mridha,* ***D. Novoa*** *and P. St.J. Russell*, Phys. Rev. Applied, **8**, 014014 (2017).

27 ***Mid-infrared dispersive wave generation in gas-filled PCF by transient ionization-driven changes in dispersion***, *F. Köttig,* ***D. Novoa****, F. Tani, M. C. Günendi, M. Cassataro, J. C. Travers and P. St.J. Russell*, Nature Communications, **8**, 813 (2017).

28 ***Coherent control of flexural vibrations in dual nanoweb fiber using phase-modulated two-frequency light***, *J. R. Koehler, R. Noskov, A. A. Sukhorukov,* ***D. Novoa*** *and P. St.J. Russell*, Phys. Rev. A, **96**, 063822 (2017).

29 ***Enhanced control of transient Raman scattering using buffered hydrogen in hollow-core PCF***, *P. Hosseini,* ***D. Novoa****, A. Abdolvand and P. St.J. Russell*, Phys. Rev. Lett., **119**, 253903 (2017).

30 ***Effect of anti-crossings with cladding resonances on ultrafast nonlinear dynamics in gas-filled PCFs***, *F. Tani, F. Köttig,* ***D. Novoa****, R. Keding and P. St.J. Russell*, Photonics Research, **6**, 84 (2018).
Editor's Pick

31 ***Dominance of backward stimulated Raman scattering in gas-filled hollow-core photonic-crystal fibers***, *M. K. Mridha,* ***D. Novoa*** *and P. St.J. Russell*, Optica, **5**, 570 (2018).

32 ***UV soliton dynamics and Raman-enhanced supercontinuum generation in photonic crystal fiber***, *P. Hosseini, A. Ermolov, F. Tani,* ***D. Novoa*** *and P. St.J. Russell*, ACS Photonics, **5**(6), 2426 (2018).

33 ***Broadband and tunable time-resolved THz system using argon-filled hollow-core photonic crystal fiber***, *W. Cui, A. S. Kearn, E. Zhang, N. Couture, F. Tani,* ***D. Novoa****, P. St.J. Russell and J. -M. Ménard*, APL Photonics, **3**, 111301 (2018).

34 ***Polarization-tailored Raman frequency conversion in chiral gas-filled hollow core photonic crystal fibers***, *S. Davtyan,* ***D. Novoa****, Y. Chen, M. H. Frosz and P. St.J. Russell*, Phys. Rev. Lett., **122**,143902 (2019).

35 ***Thresholdless deep and vacuum ultraviolet Raman frequency conversion in H_2-filled photonic crystal fiber***, *M. Mridha,* ***D. Novoa****, P. Hosseini and P. St.J. Russell*, Optica, **6**, 731 (2019).

36 ***Optical traps and anti-traps for glass nanoplates in hollow waveguides***, *M. C. Günendi, S. Xie,* ***D. Novoa*** *and P. St.J. Russell*, Opt. Express, **27**(13), 17708 (2019).
Editor's Pick

37 ***Robust excitation and Raman conversion of guided vortices in chiral gas-filled photonic crystal fiber***, *S. Davtyan, Y. Chen, M. H. Frosz, P. St.J. Russell and* ***D. Novoa***, Opt. Lett., **45**, 1766 (2020).

38 ***Narrowband vacuum ultraviolet light via cooperative Raman scattering in dual-pumped gas-filled photonic crystal fiber***, *R. Tyumenev, P. St.J. Russell and* ***D. Novoa***, ACS Photonics, **7**, 1989 (2020).

39 ***Sub-40 fs pulses at 1.8 μm and MHz repetition rates by chirp-assisted Raman scattering in hydrogen-filled hollow-core fibers***, *S. Loranger, P. St.J. Russell and* ***D. Novoa***, J. Opt. Soc. Am. B, **37**, 3550 (2020).
[highlighted in "Spotlight on Optics" of the OSA]

40 ***Seven-octave high-brightness and carrier envelope phase-stable light source***, *U. Elu, L. Maidment, L. Vamos, F. Tani,* ***D. Novoa****, M. H. Frosz, V. Badikov, D. Badikov, P. St.J. Russell, V. Petrov and J. Biegert*, Nature Photonics, **15**, 277 (2021).

41 ***Efficient self-compression of ultrashort near-UV pulses in air-filled hollow-core photonic crystal fiber***, *J. Luan, P. St.J. Russell and* ***D. Novoa***, Opt. Express, **29**, 13787 (2021).

Preprints

42 ***Quantum-correlation-preserving single-photon conversion via molecular modulation in gas-filled hollow-core fiber***, *R. Tyumenev, J. Hammer, N. Y. Joly, P. St.J. Russell and* ***D. Novoa***, In preparation, (2021).

43 ***Specialty photonic crystal fibres and their applications – Editorial***, ***D. Novoa*** *and N. Y. Joly*, In preparation, (2021).

Invited talks and seminars

- **Seminar:** *Nonlinear beams in CQ optical media. Liquid light theory* – MPQ (Garching, 6/4/2009)
- **Seminar:** *Optics at the Extreme: relativistic scattering in highly-nonlinear optical media* – MPL (Erlangen, 4/10/2012)
- **Talk:** *The Science of the Nothing* – University of Salamanca (13/11/2012)
- **Talk:** *A new horizon in Laser Science: Extreme Light Infrastructure* – Zaragoza (Spain, 4-7/9/2012)
- **Talk:** *Searching light-by-light diffraction in vacuum from QED-New Physics at ultraintense lasers* – I joined IZEST Helmholtz Beamlines (Darmstadt, 23- 25/4/2012)
- **Seminar:** *Extreme to Gauge Extreme: Looking into the properties of vacuum with ultraintense lasers* – International Max Planck Research School for the Physics of Light (Erlangen, 25/04/2013)
- **Talk:** *Spontaneous symmetry breaking and shock wave formation in gas-filled hollow-core PCF ring cavities* – ICO 23 (Santiago, 26-29 August/2014)
- **Seminar:** *Nonlinear optics with gas-filled hollow-core photonic crystal fibers: from efficient VUV emission to opto-molecular modulation* – University of Salamanca (1/12/2014)
- **Talk:** *The Extreme Photonic Gauge: characterizing extreme high vacuum with ultraintense lasers* – IV Users meeting of the Center for Ultrashort Ultraintense pulsed lasers (Spain, 2/12/2014)
- **Talk:** *Spontaneous symmetry breaking and shock-wave formation in gas-filled PCF cavities* – Complex phenomena in nonlinear optical cavities: theory and experiments (Besançon, 4-5/11/2015)
- **Talk:** *Hollow-core photonic crystal fibres as nonlinear optics microlabs: from ultra-broadband supercontinuum generation to opto-molecular modulation* – Recent Trends in Modern Optics (Porto, 22/06/2016)
- **Talk:** *Broadband single-mode frequency conversion and Raman gain suppression in gas-filled hollow-core PCF* – Specialty Optical Fibers (Vancouver, 18/07/2016)
- **Talk:** *Ultrabroad supercontinuum generation and molecular modulation in gas-filled hollow-core PCF* – Frontiers

in Physical Sciences (Buenos Aires, 17/11/2016)
- **Talk:** *Harnessing light with gas and glass* – IONS 2017 (Bogotá, 15/08/2017)
- **Talk:** *Enhanced control of molecular modulation in hollow-core fibers*– PQE 2018 (Utah, 7-13/01/2018)
- **Talk:** *Self-oscillation and coherent control of flexural vibrations in dual-nanoweb fiber*– PQE 2019 (Utah, 6-11/01/2019)
- **Talk:** *Highly efficient thresholdless ultraviolet frequency conversion in H_2-filled photonic crystal fiber*– CLEO US 2019 (San Jose, 5-10/05/2019)
- **Talk:** *Mastering ultrafast UV light in hollow-core photonic crystal fibers*– CLEO Europe 2019 (Munich, 27-29/06/2019)

Book chapter

Quantum vacuum polarization searches with high power lasers below the pair production regime, *D. Tommasini,* ***D. Novoa*** *and L. Roso*, Book chapter featured in Progress in Ultrafast Intense Laser Science X, edited by Springer (2014).

Past project grants

1 **Acción complementaria nacional Red temática de ondas no lineales en fotónica y óptica cuántica**.
- **Granted by:** Ministerio de Educación y Ciencia (Spain)
- **Participants:** University of Vigo, University of Castilla-La Mancha, University of Valencia, ICREA
- **Period:** 01-2007 — 12-2008
- **PI:** Prof. Humberto Michinel

2 **Rede galega de fotónica**.
- **Granted by:** Xunta de Galicia (Spain)
- **Participants:** University of Vigo, University of Santiago de Compostela, University of A Coruña
- **Period:** 01-2007 — 12-2008
- **PI:** Prof. Humberto Michinel

3 **Experimental study of the the optical properties of ultracold atoms**.
- **Granted by:** Ministerio de Educación y Ciencia (Spain)
- **Participants:** University of Vigo
- **Period:** 10-2007 — 8-2008
- **PI:** Prof. Humberto Michinel

4 **Bose-Einstein condensation of Rb**.
- **Granted by:** Ministerio de Educación y Ciencia (Spain)
- **Participants:** University of Vigo
- **Period:** 1-2009 — 12-2011
- **PI:** Prof. Humberto Michinel

5 **Development of an all-optically-controlled coherent source of cold atoms**.
- **Granted by:** Xunta de Galicia (Spain)
- **Participants:** University of Vigo
- **Period:** 1-2009 — 9-2013
- **PI:** Prof. Humberto Michinel

6 **Impulso a la participación española en ELI a través del CLPU**.
- **Granted by:** MINECO (Spain), ACI2009-1008
- **Participants:** Centre for Ultrashort Intense Lasers (CLPU)
- **Period:** 1-2009 — 12-2012
- **PI:** Prof. Luis Roso

7 **Consolider Ingenio SAUUL**.
- **Granted by:** MINECO (Spain)
- **Participants:** University of Salamanca, University of Murcia, ICFO, Institute Rocasolano, University Complutense of Madrid, University of Valencia, University of the Basque Country, University Jaume 1
- **Period:** 1-2007 — 12-2012
- **PI:** Prof. Luis Roso

Research stays

1 **Nonlinear waves and mathematical modelling group - University of Castilla La-Mancha**.
- **Place:** Ciudad Real (Spain)
- **Supervisor:** Prof. Victor M. Pérez-García
- **Period:** 23 – 29/7/2008

2 **Theory Division at the Max Planck Institute for Quantum Optics**.
- **Place:** Garching (Germany)
- **Supervisor:** Prof. Ignacio Cirac
- **Period:** 01/3/2009 – 29/5/2009

3 **Institute of Applied Mathematics - University of Castilla La-Mancha**.
- **Place:** Ciudad Real (Spain)
- **Supervisor:** Prof. Victor M. Pérez-García
- **Period:** 02 – 7/5/2010

4 **Optics group - University of Salamanca**.
- **Place:** Salamanca (Spain)
- **Supervisor:** Prof. Íñigo Sola Larrañaga
- **Period:** 06 – 10/09/2010 and 17– 19/11/2010

5 **Centre for Ultrashort Ultraintense Pulsed Lasers**.
- **Place:** Salamanca (Spain)
- **Supervisor:** Prof. Luis Roso Franco
- **Period:** 01/09/2011 – 31/12/2012

6 **Max-Planck Institute for the Science of Light**.
- **Place:** Erlangen (Germany)
- **Supervisor:** Prof. Philip St.J. Russell
- **Period:** 1/1/2013 – 31/03/2021

Languages

Spanish	**Mother Tongue**	English	**Proficient**
Galician	**Mother Tongue**	German	**Advanced**
Portuguese	**Advanced**		

Teaching experience

Numerical modeling of photonic devices and laser systems.
- **Place:** Ferrol (Spain)
- **Period:** 14 - 18/7/2008

Classical optics [Physics studies].
- **Place:** University of Vigo (Spain)
- **Period:** Sept. - Dec. 2008

Classical Electrodynamics [Physics studies].
- **Place:** University of Vigo (Spain)
- **Period:** Sept. - Dec. 2008

Laboratory of Optics [Physics studies].
- **Place:** University of Vigo (Spain)
- **Period:** Sept. - Dec. 2008

Quantum Physics I [Physics studies].
- **Place:** University of Vigo (Spain)
- **Period:** Sept. - Dec. 2008

Other merits

- Research group leader in the Russell Division of the Max Planck Institute for the Science of Light
- Supervisor of 6 PhD students (5 graduated, 1 ongoing)
- Regular reviewer for top-ranked scientific journals (including Physical Review Letters, Scientific Reports, Physical Review A, Physical Review Research, Optics Express, Optics Letters, Photonics Research, APL Photonics, Optics Communications, J. of Lightwave Technology, Sensors, etc)
- Guest Editor of the special issue "Specialty photonic crystal fibers and their applications" for the journal *Crystals* (2020)
- Regular contributor for the outreach magazine "Spotlight on Optics" of the Optical Society of America
- Co-organizer of the CLEO16 special symposium -Celebrating 20 years of photonic crystal fiber-
- Local committee member for the -IX Spanish Optics Meeting-, held in Ourense [Spain] (14-17/9/2009)
- Local committee member for the meeting -Nonlinear Phenomena in degenerate Quantum gases-, held in Ourense [Spain] (12-16/4/2010)
- Local committee member for the national meeting -I CLPU Users meeting- held in Salamanca [Spain] (12-13/12/2011)
- Scientific advisor of the -International School of Ultrafast Intense Laser Science-, held in Menorca [Spain] (10-15/6/ 2012)
- Chairman of the local organizing committee for the national meeting -II CLPU Users meeting- held in Salamanca [Spain] (3-4/12/2012)
- My proposal *Blacklines* was shortlisted for the interview stage of the ERC-starting grant 2018

References

Prof. Philip St.J. Russell, FRS,
Max Planck Institute for the Science of Light,
Staudtstraße 2, 91058 Erlangen (Germany)
E-mail: philip.russell@mpl.mpg.de
Phone: +49 – 9131 7133 200.

Prof. Humberto Michinel,
University of Vigo,
As Lagoas s/n, 32004 Ourense (Spain)
E-mail: hmichinel@uvigo.es
Phone: +34 – 988 38 72 20.

Prof. Nicolas Y. Joly,
University of Erlangen-Nürnberg,
Staudtstraße 2, 91058 Erlangen (Germany)
E-mail: nicolas.joly@fau.de
Phone: +49 – 9131 7133 215.

Prof. John C. Travers,
Heriot-Watt University,
Edinburgh EH14 4AS (United Kingdom)
E-mail: j.travers@hw.ac.uk
Phone: +44 – 0131 451 4039.