CURRICULUM VITAE

Date	12/09/2023

Section A. PERSONAL DATA

Name/Family name	Xabier Quintana Arregui		
Personal ID		Age	
Researcher Identification Number	Researcher ID	AAA-6803-2019	
	Orcid Code	0000-0003-4315-2701	

A.1.Current position

Organism	Universidad Politécnica de Madrid			
Dptment./Center	CEMDATIC - TFB/ ETSI-Telecomunicación,			
Address	Av. Complutense Nº 30, 28040 Madrid, España			
Telephone	629102574	e_mail	x.quintana@upm.es	
Professional Category	Full Professor		Start Date	27/02/2023
UNESCO code	221093			
Keywords	Micro Electronics, Liquid Crystal, Displays, Antiferroelectric Liquid Crystal, Ferroelectric CL, Passive Matrix, Modulators, Routers, Phase Control Devices, Flat Lenses, Filters, Programmable Optical Devices, Photonic Integrated Circuits,			

A.2. Academic education

Degrees	University	Year
Ms. Telecom Engineer	ETS.I.T. - Universidad Politécnica de Madrid	17/Nov/1992
Ph.D. Telecom Engineer	ETS.I.T. - Universidad Politécnica de Madrid	29/Jul/1997

A.3. Research quality

Sexenial research periods: , last: 2012-2017; date: June 2018.
Supervised Ph.D. in the last 10 years: 5
Published works: 124 (83 international y 41 in peer-reviewed proceedings)
Citations: 598 (WOS)
Average citations/year in the last 5 years: 43 (WOS)
Works in 1st quartile (Q1): 23 (WOS)
H index: 13 (WOS core)

Section B. CV SUMMARY

He has developed his research activity in ETSI Telecommunication of UPM since 1993. His research interest has focused on Guided Optical Communications (anisotropic guides, unconventional fibers) and non-guided transmission (atmospheric transmission, space), as well as Photonic Applications of Liquid Crystals (displays, microdisplays, phase devices, tuneable filters, modal lenses) and organic electronics (OLEDs and organic photodetectors).

He is a member of the Applied Photonics Group, a consolidated research group at UPM, since his formation in 2005. He is secretary of the Center for Advanced Materials and Devices for ICT (CEMDATIC), a Center for R & D & I of the UPM, since its formation in 2011 and directs the technological processes of the clean chamber of the Group.

He has directed 6 projects of competitive public participation in national and regional calls, has participated in 12 projects corresponding to EU Programs, and has participated in 20 other national or regional projects. He has also participated in 16 projects with companies of which he has been PI in three of them.

He is co-author of 14 publications in national journals and in more than 60 international publications in scientific journals with an impact index (thirteen of them in the first quartile). He has made more than 150 communications to international conferences. He is also co-author of 8 national and international patents. Three of them has been licensed and is currently in operation by a CEMDATIC spin-off company.

He has directed five Doctoral Theses and is currently directing two more. He is in possession of four six-year research periods.

Teaching activities

He has developed graduate and postgraduate teaching activities, mainly at the Higher Polytechnic School of the Carlos III University of Madrid (1997-98) and since then at the Higher Technical School of Telecommunications Engineers of the UPM and at the Higher Technical School of Civil Engineers of the UPM (Graduate in Materials Engineering). He has taught about 10 undergraduate subjects of different Study Plans, and as many postgraduate degrees in Doctorate and Masters. He is co-author of several Handbooks of Laboratory Practices. He participates in an educational innovation project.

He has given lectures, courses and seminars, mainly on optical communications and liquid crystal devices.

He is the coordinator of the Cosumer Electronics course, which is project oriented teaching centred on microprocessors

He has directed more than 15 Final Degree Projects in the degree of Telecommunications Engineer. He is in possession of five five-year teaching periods.

Section C. MOST RELEVANT MERITS

C.1. Publications (top 10 of the last 5 years)

1. De la Rosa, Pablo; Pereiro-García, Javier; Caño-García, Manuel; Otón, José Manuel; Quintana, Xabier and Geday, Morten A. “Generation of integer and fractional vortex beams based on liquid crystal electronically reconfigurable spiral phase plates” Optics Express, 2023, 31 (19), 31212-31220 Doi: 10.1364/OE.494676
2. Paz, Luis Felipe; Cano-García Manuel; Geday, Morten Andreas; Otón, José Manuel; Quintana, Xabier; “Identification of dyes and matrices for dye doped polymer waveguide emitters covering the visible spectrum” *Scientific Reports,* 2022, **12**(1), 6142 Doi: 10.1038/s41598-022-10145-8.
3. García de Blas, Mario; García Pereiro, Javier;Vera Andreu, Sergio; Quintana Arregui X.; Cano-García, Manuel; Geday Morten A.; “High resolution 2D beam steerer made from cascaded 1D liquid crystal phase gratings” *Scientific Reports,* 2022, **12**(1), 5145 Doi: 10.1038/s41598-022-09201-0.
4. García de Blas M; Geday MA; Otón JM; Quintana Arregui X.; “Two-dimensional digital beam steering based on liquid crystal phase gratings” Applied Sciences-Basel, 2021, **11** (8) DOI: 10.3390/app11083632
5. Rodriguez-Cortina, Monica; Adamiec, Pawel; Barbero, Juan; Quintana, Xabier; Andreas Geday, Morten; “Emulation Technique of Multiple Overlapped Return Echoes of a Spatial LIDAR with 100-dB Dynamic Resolution” IEEE Transactions on Instrumentation and Measurement*,* 2021, **70**, Doi: 10.1109/TIM.2021.3092778
6. Geday, M.; Caño-García, M.; Otón, J.M.; Quintana, X.; “Adaptive Spiral Diffractive Lenses - Lenses With a Twist”, *Adv. Opt. Mat.*. **8** (2001199); (2020); DOI: 10.1002/adom.202001199
7. Vega-Colado, C.; Arredondo, B.; Torres, J.C.; Lopez-Fraguas, E.; Vergaz, R.; Martin-Martin, D.; del Pozo, G.; Romero, B.; Apilo, P.; Quintana, X.; Geday, M.A.; deDios, C.; Sanchez-Pena, J.M. “An All-Organic Flexible Visible Light Communication System”, Sensors 2019 **18**(9)3045, Doi: 10.3390/s18093045
8. Cano-Garcia, M. ;Poudereux, D.; Gordo, F.J.;Geday, M.A.;Oton, J.M.;Quintana, X. “Integrated Mach-Zehnder Interferometer Based on Liquid Crystal Evanescent Field Tuning”, 2019, *Crystals,* **9**(5)225 Doi.: 10.3390/cryst9050225
9. Otón J.M.; Otón, E.; Quintana X., Geday, M.A., “Liquid-crystal phase-only devices”, J. Mol. Liq. 2018, **267**(1), 469-483
10. Caño-García M.; Quintana, X; Otón, J.M.; Geday, M.A. “Dynamic multilevel spiral phase plate generator”, *Sci. Rep.* 2018, **8**(1) 15804

C.2. Participation in R & D & I projects

C.2.a Projects as PI

1. ITT 10245, ESA, “Smart Heaters”, PI: X. Quintana, 01/12/2020-30/11/2022,120.000€
2. IND2020/TIC-17424, Comunidad Autónoma de Madrid, Lasing S.A., “Doctorado Industrial”, PI: X. Quintana 10/06/2021-09/06/2024, 88.200 €
3. PEJD-2018-PRE/IND-8910, Comunidad Autónoma de Madrid, “Contratación de investigador predoctoral”, PI: X. Quintana 2019-2020, 25.000€
4. IND2017/TIC-7835, Comunidad Autónoma de Madrid, Alter Technology TUV. “Doctorado Industrial”, PI: X. Quintana 2018-2020, 105.000 €
5. P2018/NMT-4326: Comunidad Autónoma de Madrid “Sensores e Instrumentación en Tecnologías Fotónicas2 (SINFOTON2-CM)”, PI: X. Quintana ,227.700€
6. TEC2013-47342-C2-1-R, *"Una Nueva Generación de Dispositivos Fotónicos basada en Materiales Autoorganizados: Fabricación (UNDOMATOR)"*. Entidad financiadora: Ministerio de Economía y Competitividad. Convocatoria: - Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad, Convocatoria 2013. Investigador principal: José M. Otón, Xabier Quintana, CEMDATIC, Universidad Politécnica de Madrid, Period: 2014-2017, Budget: 250.591 €
7. TSI-020110-2009-363. “Sistema de Accesibilidad al Cine y a Otros Eventos Culturales para Personas Sordas (SACEC)” (Oct. 2009- Dec 2011). Acción Estratégica de Telecomunicaciones y Sociedad de la Información. Budget 192.039,20€. Budget UPM: 65.599€. Ministerio de Industria Turismo y Comercio.
8. CENIT VISION 2007-1007 Ministerio de Industria Turismo y Comercio. “VISION” (Jan. 2007-Dec 2010) Project CENIT. Presupuesto UPM: 237.811 €.

C.2.b Projects as researcher

9. EU-Attract/ALL “Adaptive Liquid Crystal Lens”, Union Europeo, Coordinador Europeo y PI: M.A. Geday, Subvencion UPM 70.000€.
10. TEC2016-77242-C3-2-R: MINECO: “Estructuras sublongitud de onda de capa delgada para circuitos fotonicos (II) guiaondas activas y chips fotonicos”, PI: M.A. Geday y J.M. Otón. 2017-2019, 168.069 €
11. :EU-FP7:304814, *“RaptaDiag: Rapid Aptamer based diagnostics for bacterial meningitis”*. Entidad financiadora: Unión Europea. Convocatoria: Call FP7-HEALTH-2012-INNOVATION-2. Investigador principal: Morten A. Geday, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Oct. 2012– Dec. 2015, Budget: 1.035.418€, Participación: Investigador
12. S2013/MIT/2790/SINFOTON/CM, "Sensores e Instrumentación en Tecnologías Fotónicas: SINFOTON". Entidad financiadora: Comunidad de Madrid. Convocatoria: PI: José M. Otón, CEMDATIC, Universidad Politécnica de Madrid, Period: Jan. 2015 – Dec. 2018, Budget: 154.000 €.,
13. Project reference: IC1208, “Integrating devices and materials: a challenge for new instrumentation in ICT ". Entidad financiadora: Unión Europea. Convocatoria: Acción COST. Investigador principal: José M. Otón, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Jun. 2013 – May. 2017, Budget: 600.000 €, para toda la acción,
14. S2009/ESP-1781 FACTOTEM2-CM, "Fotónica Aplicada a la Creación de Tecnologías Ópticas y su Transferencia a Empresas Madrileñas: FACTOTEM2". Entidad financiadora: Comunidad de Madrid. Convocatoria: Creación de Tecnologías Ópticas y su Transferencia a Empresas Madrileñas II. Investigador principal: José M. Otón, Centro de Materiales y Dispositivos Avanzados paras Tecnología de la Información y Comunicaciones, Universidad Politécnica de Madrid, Periodo: Jan. 2010 – Dec. 2013, Budget: 352.921 €.

C.3. Participation in R & D & I contracts

1. "Design of a tunable reflectarray antenna at 100 GHz based on liquid crystal" Huawei. Budget 191.725 €. Period: Nov. 2017 Jun. 2018. PI: Xabier Quintana.
2. "Liquid Crystal Optical Retarders", *Visual Display, S.L.* PI: X. Quintana, Universidad Politécnica de Madrid (01/01/2008-01/06/2010) €8.000
3. "Nuevos Tipos de Retardadores Ópticos de Cristal Líquido", *Visual Display, S.L.* PI: X. Quintana, Universidad Politécnica de Madrid (01/01/2012-31/12/2012) €10.000
4. "Prototipo de estación óptica de seguimiento dotada de un retromodulador en el subsistema de vuelo" *Ingeniería y Servicios Aeroespaciales, S.A. (INSA)*, PI: F.J. López Hernández, Universidad Politécnica de Madrid (01/10/2006-01/07/2007) €23.448

C.4. Patents

1. Cano Garcia Manuel, Oton Sanchez Jose Manuel, Geday Morten Andreas, Quintana Arregui Patxi Xabier, Elmogi Ahmed, Mattelin Marie-Aline, Missinne Jeroen, VanSteenberge Geert; "Metodo y dispositivo reconfigurable para el guiado de una señal óptica con dos polarizaciones perpendiculars"; es2671218 (a1); es2671218 (b2); 2018-06-05
2. Cerrolaza Martínez Beatriz , Carrasco Vela Carlos , Geday Morten Andreas , Otón Sánchez José Manuel , Quintana Arregui Patxi Xabier ; Method for manufacturing personalised optical document security elements and the element obtained; wo2019086726 (a1); 2019-05-09
3. Encinar Garcinuno Jose Antonio , Perez Palomino Gerardo , Barba Gea Mariano , Quintana Arregui Xavier , Geday Morten Andreas , Oton Sanchez Jose Manuel , Broquetas Ibars Antoni , Abril Aguilera Jordi , Nova Lavado Enrique ; "Reconfigurable beam reflectarray antenna for frequencies in the terahertz and millimeter-wave range"; es2388213 (a1); es2388213 (b2); 2012-10-10
4. Geday Morten Andreas, Cano Garcia Manuel, Oton Sanchez Jose Manuel, Quintana Arregui Patxi Xabier, Geday Jacob Andreas; "Dispositivo optico configurable"; es2711456 (a1); 2019-05-03
5. Geday Morten Andreas , Oton Martinez Eva , Escolano Moyano José Miguel , Oton Sanchez José Manuel , Quintana Arregui Xabier ; "Method for amplifying the detection of targets in an aligned liquid crystal matrix"; es2499790 (a1); es2499790 (b2); wo2015193525 (a1); 2014-09-29
6. Geday Morten Andreas , Quintana Arregui Patxi Xabier , Otón Sánchez Jose Manuel , Cerrolaza Martínez Beatriz , Carrasco Vela Carlos ; "Optical device and method for achieving multiple latent images for document security"; us2018290479 (a1); 2018-10-11
7. Quintana Arregui Patxi Xabier , Andreas Geday Morten , Otón Sánchez José Manuel , Cerrolaza Martinez Beatriz , Carrasco Vela Carlos ; "Method and device for document security by generating multiple reflective and transmissive latent images"; us2019070888 (a1); 2019-03-07

C.5. Other Merits

Responsible de Doctorate administration at the Departamento (7 years)

Secretary of CEMDATIC Center since 2011 to 2022.

Reviewer of Official Agency for Research Funding of Spanish Government.

AENOR Expert (Spanish Agency of Standards)