

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 5 pages.

Part A. PERSONAL INFORMATION

First name	Iker		
Family name	León Ona		
e-mail	iker.leon@uva.es	URL Web http://www.gem.uva.es/	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-1992-935X	

(*) Mandatory

A.1. Current position

Position	Profesor Titular de Universidad		
Initial date	01/06/2023		
Institution	Universidad de Valladolid		
Department/Center	Química Física y Química Inorgánica	Facultad de Ciencias	
Country	Spain		
Key words	IR, Microwave, Rotational, Spectroscopy, Structure, Biomolecules, Astrochemistry, Computational Chemistry		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2011-2011	Teaching And Research Contract at University of the Basque Country, Basque Country, (Spain)
2012-2014	Postdoctoral Fellow at Brown University, Providence, RI (USA)
2015-2016	Postdoctoral Fellow (Juan de la Cierva) at Institute of Photonic Sciences (ICFO), Castelldefels, Barcelona (Spain)
2017-2018	Postdoctoral Contract (Junta de Castilla y León) at University of Valladolid (UVa), Valladolid, Valladolid (Spain)
2018-2019	Postdoctoral Contract (Universidad de Valladolid) at University of Valladolid (UVa), Valladolid, Valladolid (Spain)
2019-2023	Profesor Ayudante Doctor (Universidad de Valladolid) at University of Valladolid (UVa), Valladolid, Valladolid (Spain)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	University of the Basque Country / Spain	2011
MSc	University of the Basque Country / Spain	2006
BSc in Chemistry	University of the Basque Country / Spain	2005

(Include all the necessary rows)

Part B. CV SUMMARY (max. 5000 characters, including spaces)

Dr. Iker León holds a degree in Chemical Sciences (specializing in Physical Chemistry) from the University of the Basque Country (2005). He began his research career at UPV (2006) with a **predoctoral fellowship** from the Basque Government to study molecules of biological interest using vibrational and electronic spectroscopy techniques with mass detection. His resulting thesis, defended in 2011, received a Cum Laude distinction and an extraordinary doctoral award.

He obtained a **postdoctoral fellowship** from the Basque Government, which enabled him to complete a 2-year stay at the prestigious Brown University in the United States (2012-2014), under the supervision of internationally renowned Prof. Lai-Sheng Wang, conducting photoelectron spectroscopy studies of metallic complexes. This position allowed him to focus on research tasks, collaborate with foreign academics, and present his work at prestigious international scientific conferences.

His scientific trajectory enabled him to obtain the prestigious postdoctoral training grant (**Juan de la Cierva**) from the Ministry of Education and Science (2015-2016), which he developed at the Institute of Photonic Sciences (ICFO), in Prof. Jens Biegert's internationally prestigious Attosecond and Ultrafast Optics group, strengthening his researcher profile and beginning leadership roles as a co-director of a thesis. During this postdoctoral phase, characterized by methodological training and internationalization, he began his teaching profile by delivering courses within the Interuniversity Master's in Photonics and the Erasmus Mundus Master's in Euromaterials for 2 academic years.

His next phase began in 2017 with a **postdoctoral research contract** from the Junta de Castilla y León, joining the GEM Research group under the supervision of Prof. José Luis Alonso at the University of Valladolid to study and characterize biological molecules, sweeteners, and molecules of astrophysical interest using Microwave spectroscopy techniques. In recognition of his research activity he received the Young Investigator Award from the Spanish Royal Spanish Chemical Society, and, in June 2018, he obtained through a highly competitive public competition (seven contracts distributed across the five major branches of knowledge) a postdoctoral contract from the University of Valladolid, a position he held until obtaining a position as **Assistant Professor** and currently as **Tenured Professor**.

All this has consolidated his capacity to produce first-rate research, as evidenced by his **101 articles published** in academic journals (JCR, a list of all his papers can be found in ORCID 0000-0002-1992-935X). These high-impact journals include 1xAPR, 8xAngewandte Chemie, 9xJ. Phys. Chem. Lett., 3xChemistry-A European Journal, 1xOptica, 5xThe Astrophysical Journal, 4xA&A, 23xPCCP. Additionally, he has presented **more than 88 communications** at international conferences, **published 3 books**, and participated in **17 research projects** funded by various institutions, including ERC-Synergy (Nanocosmos), NSF, Consolider-Ingenio, National Plan, Mineco, JCyL, being PI of a 3-year National Project. He is currently the President of the Royal Spanish Chemical Society in Castilla y León.

During his latest period, he has made a strong commitment to consolidating his teaching profile and teaches in the Chemistry and Physics Degrees at the University of Valladolid as a Tenured Professor, coordinating 3 Teaching Innovation Projects. Furthermore, Dr. León has **supervised 2 doctoral theses and is currently supervising 3 doctoral theses**, has supervised 21 undergraduate final projects, 10 master's theses, and 28 business internships.

EMPHASIS ON THE RESEARCH CAREER OF THE LAST FIVE YEARS (2020-2025)

The period between 2020 and 2025 represents the stage of maturity and consolidation of my professional career, characterized by the transition from high-level postdoctoral training to independent leadership of a research line at interface of molecular physics and pharmacology.

1. Leadership and Autonomy as Principal Investigator (PI)

During this 5-year period, I have demonstrated my capacity to secure and manage competitive resources, serving as the **Principal Investigator of the National Research Plan project BIOISM** (PID2019-111396GB-I00, 181,500 EUR). Under my direction, the group has achieved key methodological milestones, such as the implementation of laser ablation for the *in situ* generation of unstable species and the structural characterization of high-complexity drugs. This phase culminated in my stabilization as an **Associate Professor (Profesor Titular)** in June 2023, consolidating an independent research group at the University of Valladolid.

2. High-Impact Scientific Contributions and Quality

In the last five years, my scientific production has not only maintained a high citation rate (averaging over **147 citations/year**) but has also made a qualitative leap toward journals of maximum impact and international prestige:

- **Publication Leadership:** I have acted as **Corresponding Author** in fundamental works published in *Angewandte Chemie* (2022, featured as a **Cover**), *The Journal of Physical Chemistry Letters* (2021, 2024, 2025), and *ACS Physical Chemistry Au* (2025).
- **Innovation in Research Focus:** I have led a paradigm shift from studying simple biomolecules to systems of clinical relevance, such as **6-aminopenicillanic acid (6-APA)**, the active core of penicillins (*JPCL* 2024), and **testosterone** (*JPCL* 2021). These investigations provide the essential structural basis for rational drug design by eliminating environmental perturbations through gas-phase spectroscopy.
- **Reactivity Studies:** My most recent work on **benzoyl peroxide (BPO)** (*JPCL* 2025) has allowed a transition from static structural analysis to the study of reaction mechanisms and photofragmentation, a new research avenue that underpins the current Leonardo proposal.

3. Mentoring and Human Capital Development

My ability to train the next generation of researchers is reflected in the supervision of **6 doctoral theses** (2 successfully defended and 4 in advanced stages of development). Leadership in this area is tangible: my PhD students sign as first authors in first-quartile (Q1) journals, accrediting high-quality technical and scientific supervision. Furthermore, I have coordinated the tutoring of **25 Undergraduate Final Projects (TFG)** and **11 Master's Theses (TFM)**, integrating students into real-world research environments.

4. International Recognition and Institutional Management

My excellence has been recognized by my peers through:

- **Presidency of the RSEQ (Royal Spanish Chemical Society) in Castilla y León:** Leading the representation of the regional chemical community.
- **Scientific Evaluation:** I am a regular reviewer for the 12 most prestigious journals in my field and have served as an international evaluator for prestigious agencies such as **Fondecyt (Chile)** and currently in the **national UKRI Funding (UK)**.
- **Participation in Consortia:** My active collaboration in the **ERC-Synergy NANOCOSMOS** project (until 2020) allowed me to integrate cutting-edge techniques and establish an international collaboration network that today supports my research independence.

5. Teaching Innovation and Social Commitment

I have led the modernization of Physical Chemistry education by coordinating **4 Teaching Innovation Projects**, implementing disruptive methodologies. My commitment to outreach is evidenced by the annual organization of the "**Crystallization**" and "**Get Closer to Chemistry**" programs, impacting hundreds of secondary school students to foster scientific vocations.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

Due to the limitation of the instructions (maximum 10 publications per section), only those published in the last two years are included to demonstrate a strong publication record, both related to the topic or/and as corresponding author. To view all publications (101), please refer to the following link with the CV: <https://cvn.fecyt.es/editor/cvnOnline/0000-0002-1992-935X>

1. S. Municio, S. Mato, J. L. Alonso, E. R. Alonso, I. León*, New Molecular Insights on Gabapentin. *ACS Physical Chemistry Au*, 2025, 5, 4, 338–345, **Corresponding author, Cover**
2. A. Insausti, E. R. Alonso, L. Kolesniková, A. Belloche, I. León, and S. Mato, Rotational Spectrum and Search for Lactonitrile toward Sgr B2(N), *The Astrophysical Journal*, 2025 ApJ 981, 64



3. S. Municio, S. Mato, J. L. Alonso, E. R. Alonso, I. León*, Elucidating the Three-Dimensional Structure of Piracetam through Rotational Spectroscopy, **ChemistryOpen**, 2025 14 (8), e202400490, **Corresponding author**
4. L. Uribe, M. Mendolicchio, S. Municio, S. Mato, E. R. Alonso, J. L. Alonso, I. León*, V. Barone*, J. Phys. Chem. Lett. 2025, 16, 25, 6523–6532, **Corresponding author**
5. L. Uribe, S. Mato, L. Crisci, S. Municio, E. R. Alonso, J. L. Alonso, I. León*, V. Barone*, Unraveling molecular flexibility in prebiotic chemistry: Tiopronin under the lens of rotational spectroscopy and quantum chemistry, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2025, 348, 127250, **Corresponding author**
6. S. Mato, S. Municio, J. L. Alonso, E. R. Alonso, I. León, Fragmentation Dynamics of Benzoyl Peroxide: Insights from Rotational Spectroscopy, *J. Phys. Chem. Lett.* 2025, 16, 44, 11597–11603, **Corresponding author, Cover**
7. I. León, E. R. Alonso, S. Municio, S. Mato, M. Mendolicchio, S. Mata, C. Cabezas, V. Barone*, J. L. Alonso*, Five structures of the Pro-Gly dipeptide unveiled by laser ablation rotational spectroscopy, *Phys. Chem. Chem. Phys.*, 2025, 27, 23645-23654, **First author**
8. S. Mato, J. Cernicharo, I. León, B. A. McGuire, E. R. Alonso, I. León, The Rotational Spectrum of 1-cyanocyclopentene and Its Search towards TMC-1, **The Astrophysical Journal**, 2025 ApJ 994, 217
9. S. Municio, S. Mato, J. L. Alonso, E. R. Alonso, I. León, Conformational Analysis of 3-Indoleacetamide: Unveiling Structural Rigidity in the Tryptophan-Derived Bioactive Molecule Family, *Molecules*, 2025 30(21), 4156, **Corresponding author, Cover**
10. S. Municio, S. Mato, J. L. Alonso, E. R. Alonso, I. León, Molecular Recognition Blueprint: Isolated Conformers of Indole-3-Acetic Acid Predispose the Plant Hormone for Receptor Binding, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 2025, Just Accepted, **Corresponding author**

Book Chapters:

1. Dipeptides and Tripeptides: Advances in Applications and Research, Nova, Ed. Tristan L. Thygesen, 2020, The Shape of Dipeptides: Insights from Rotational Spectroscopy (Chapter 2)
2. Intra- and Intermolecular Interactions Between Non-covalently Bonded Species, Elsevier, Ed. Elliot R. Bernstein, 2021, The Role of the Intramolecular Hydrogen Bond in the Conformational Behavior of Biomolecules: Insights from Rotational Spectroscopy (Chapter 4)
3. Intra- and Intermolecular Interactions Between Non-covalently Bonded Species, Elsevier, Ed. Elliot R. Bernstein, 2021, Non-covalent Interactions in Isolated Molecular Aggregates: From Single Molecules to Nano-structures (Chapter 5)

C.2. Congress, indicating the modality of their participation

Since 2013, I have been invited to deliver more than 5 talks/plenary lectures at conferences, research centres, or universities, with more than 88 contributions. For a selection:

1. Astrochemistry: From Quantum to Cosmos (Nijmegen, Netherland), October 2025. Oral presentation
2. International Symposium on Molecular Spectroscopy - ISMS2025 (Urbana, USA), June 2025. Oral presentation
3. Extending the Laboratory Measurements of 2-Aminooxazole by means of Millimeter Wave Spectroscopy J2IFAM2025 (Valencia), February 2025. Oral presentation
4. High Resolution Molecular Spectroscopy - HRMS2022 (Praga, Check Republic), September 2022. Oral presentation
5. International Symposium on Molecular Spectroscopy - ISMS2022 (Urbana, USA), June 2022. Oral presentation
6. International Symposium on Molecular Spectroscopy - ISMS2021 (Urbana, USA), June 2021. Oral presentation
7. International Symposium on Molecular Spectroscopy - ISMS2020 (Urbana, USA), June 2020. Oral presentation
8. Iberian Joint meeting on atomic and molecular physics - IBER2019 (Évora, Portugal), July 2019. Oral presentation
9. European Congress on Molecular Spectroscopy - EUCMOS2018 (Coimbra, Portugal), August 2018. Oral presentation
10. ASTRO-Winter Modelling (Bologna, Italy), February 2018. Invited lecture.

*For all conferences, see CV: (<https://cvn.fecyt.es/editor/cvnOnline/0000-0002-1992-935X>).

C.3. Research projects, indicating your personal contribution.

1. **Title:** "*Biomoléculas Y Moléculas Del Medio Interestelar (ISM): Relación Estructura-Propiedad, Tautomerismo Y Generación de Nuevas Moléculas Mediante Técnicas De Ablación Láser (BIOISM)*". **Agency:** Ministerio de Ciencia e Innovación. **Reference:** PID2019-111396GB-I00. **Principal Investigator:** Iker León, José Luis Alonso. **Duration:** 01/06/2020 al 01/06/2023. **Quantity:** 181.500 €. **Role:** Principal Investigator

2. **Title:** "*Laser Ablation Spectroscopic Techniques: From Building Blocks and Sweeteners To Interstellar Molecules*". **Agency:** Junta de Castilla y Leon, **Reference:** VA244P20. **Principal Investigator:** José Luis Alonso. **Duration:** 30/10/2020 al 30/10/2023. **Quantity:** 172.000 €. **Role:** Research Team

3. **Title:** "*Biomoléculas Y Moléculas Del Medio Interestelar: Relaciones Estructura-Propiedad, Quiralidad Y Detección en el ISM*". **Agency:** Ministerio de Ciencia e Innovación, **Reference:** CTQ2016-76393-P. **Principal Investigator:** José Luis Alonso. **Duration:** 30/12/2016 al 29/12/2019. **Quantity:** 206.910 €. **Role:** Research Team

4. **Title:** "*Gas And Dust From Stars To The Laboratory: Exploring The Nanocosmos*". **Agency:** ERC-2013-SyG- Synergy Grant - Proposal nº 610256 NANOCOSMOS. **Principal Investigator:** Jose Cernicharo, GEM de Valladolid: Jose Luis Alonso. **Duration:** 01/08/2014 al 31/07/2020. **Quantity** (en euros): 15.900.000.GEM Valladolid: 660.000

5. **Title:** "*Relaciones Estructura-Propiedad En Edulcorantes*". **Agency:** Junta de Castilla y Leon, **Reference:** VA077U16. **Principal Investigator:** Jose Luis Alonso. **Duration:** 2016-2018. **Quantity:** 120.000 €. **Role:** Research Team

6. **Title:** "*Biomoleculas Y Moleculas Del Medio Interestelar: Estructura, Interacciones Y Caracterizacion Espectroscopica*". **Agency:** Ministerio de Ciencia e Innovación, **Reference:** CTQ2013-40717-P. **Principal Investigator:** Jose Luis Alonso. **Duration:** 01/01/2014 al 31/12/2016. **Quantity:** 225.060 €. **Role:** Work Team

7. **Title:** "*Imágenes A Escala Atómica Y Resolucion De Attosegundos Para Una Energía Solar Eficiente*". **Agency:** Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR) , **Reference:** 2014-SGR-1653. **Principal Investigator:** J. Biegert. **Duration:** 01/01/2015-31/12/2017. **Quantity:** 21.000 €. **Role:** Work Team

8. **Title:** "*Interacciones No Covalentes Y Reconocimiento Molecular Mediante Espectroscopía De Alta Resolución Laser Y Microondas En Expansiones Supersónicas*". **Agency:** Ministerio de Ciencia e Innovación, **Reference:** CTQ2012-39132-C02-01. **Principal Investigator:** José Andrés Fernández. **Duration:** 01/02/2013 – 31/12/2015. **Quantity:** 112.320 €. **Role:** Work Team

9. **Title:** "*Espectroscopia De Biomoleculas Estudios En Femtoquímica Y Ablación Láser, Espectroscopía Y Espectrometría De Biomoléculas En Fase Gas, Aerosoles Atmosféricos, Nanotecnología Y Nanofabricación*". **Agency:** Grupos Consolidados, **Reference:** IT520-10. **Principal Investigator:** Francisco Basterrechea. **Duration:** 01/01/2010-31/12/2015. **Quantity:** 738.000 €. **Role:** Work Team

10. **Title:** "*Reconocimiento Molecular Anestésico-Receptor En Fase Gas Mediante Espectroscopías De Alta Resolución Ultravioleta/Visible-Microondas Y Cálculos Mecano-Cuánticos*". **Agency:** Ministerio de Ciencia e Innovación, **Reference:** CTQ2009-14364-C02-01/BQU. **Principal Investigator:** José Andrés Fernández. **Duration:** 01/01/2010 – 31/12/2012. **Quantity:** 104.060 €. **Role:** Work Team

C.4. Contracts, technological or transfer merits

- Predoctoral Fellowship by Gobierno Vasco (2007-2010)
- Postdoctoral Fellowship by Gobierno Vasco (2012-2014)
- Postdoctoral Fellowship by Ministerio: Juan de la Cierva (2015-2016)
- Postdoctoral Contract by Junta de Castilla y León (2017-2018)
- Postdoctoral Contract by University of Valladolid (2018-2019)
- Profesor Ayudante Doctor by University of Valladolid (2019-2023)
- Profesor Titular de Universidad by University of Valladolid (2023-Present)