MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date	30-09-2023

First name	María Blanca		
Family name	Ros Latienda		
Gender (*)	Female	Birth date	
Social Security, Passport, ID number			
e-mail	bros@unizar.es	https://liquidcrystals.unizar.es/	
Open Researcher and Contributor ID (ORCID) (*)		0000-0003-4416-1036	

(*) Mandatory

A.1. Current position

Position	Full Professor			
Initial date	09/08/2010			
Institution	University of Zaragoza			
Department/Center	Organic Chemistry	Faculty of Science / INMA		
Country	Spain		Teleph. number	
Key words	Organic Chemistry, Liquid crystals, Bent-core LC, Supramolecular Chemistry, Organic functional materials			

A.2. Previous positions (research activity interuptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenced	University of Zaragoza / Spain	1982
Degree	University of Zaragoza / Spain	1983
PhD	University of Zaragoza / Spain	1987

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

Researcher ID: T-9819-2017. Scopus ID: 7103291088
Chemical profile with a scientific career in the area of Organic Chemistry and Materials Science. Member of UNIZAR since 1991, of the *Liquid Crystals and Polymers Group* (CLIP) reference group funded by the Aragón Government since 2003 and of the *Instituto de Nanociencia y Materiales de Aragón* (INMA) (former ICMA, since 1985). Research *"sexenios"* (last awarded): 6 (2014-2020). **Current research lines**: design, synthesis and characterization of bent-core liquid crystals (BCLC) and supramolecular functional materials.
My PhD (Sup.: Profs. E. Meléndez and J.L. Serrano. UNIZAR) was my beginning in the of Liquid Crystals (LC) area, where I addressed several challenging and pioneering research topics. Thus, my postdoctoral project (Univ. Colorado-Boulder, Sup.: Prof. D.M Walba, September 1988-August 1989) involved the launch of ferroelectric LC for non-linear optics as an alternative to solids, that I promoted and led in Spain funded by 4 national projects, that guided my interest to the use of LC to develop advanced functional materials beyond displays over 7 further projects. Also, with a pioneering character, I participated in the starting and consolidation of Metallomesogens (LC with metal atoms) with national (2) and European (2) funds, one collaborating with Philips Research, and as co-author of a monograph [Wiley-VCH, ISBN3527292969].

In 1999 I started my research on BCLC, discovered in 1996. My work at BCLC has activated aspects such as: i) design and synthesis; ii) structural, physical and phenomena studies (collaborating with physicists from UPV/EHU); iii) use as functional materials [antiferro, ferro and piezoelectric responses, NLO and emissive activities, photo and ionic conductivity] with notable figures of merit; iv) explore BC compounds for other supramolecular potentials [LB-films, nanoaggregates and gels]. The impact of these contributions has led to invited calls to expert reviews [RSC (3) and Wiley-VCH (1)] or book chapters [Wiley-VCH (3)] or talks (see part C.2), pointing the next ILCC2022-Plenary Lecture. In collaboration with Dr. T. Sierra (INMA) I started a new interdisciplinary line on biomaterials for drug delivery and tissue engineering, with regional funds (2 projects, 1 PhD and 2 TFM).
My research throughout my career has been developed within the framework of 20 national (4 as PI-coordinator) and European projects (3), and European networks (3), and mainly reported in JCR journals (73% Q1 and 44% D1).
My **research training activity** accounts for 10 PhD. In the period 2011-23, 4 PhD and 1 on course, 2 as only supervisor, JAE-Doc (1), TADs (1), TFGs (6), TFMs (5) and Erasmus+ (4) projects.
In my **national and international projection**, I also point my input in meeting organizing committees, as president [12th IC-FLC09. Zaragoza (Spain). 300 attendants], as member (2 national, 2 international), or in scientific boards (6); belonging to editorial boards of *Crystals* (MDPI) Sect. LC, ISSN2073-4352 (since 2018); *Liquid Crystals* (Taylor & Francis), ISSN0267-829 (since 2014); guest co-editor of the special issue "Advanced functional materials assisted by liquid crystal"-*Materials* (MDPI), ISSN1996-1944 (2017-18) or *Prensas Univeristarias*-UNIZAR (since 2013). In the period 2011-2021, I was evaluator of research projects for AEI-Spain (former ANEP), ANPCT-Argentina, FONDCYT-Chile, Juan de la Cierva (MINECO) and JAE-DOC (CSIC) programs.
My commitment to **research management** is reflected at various levels of responsibility: being part of the Rector team of UNIZAR as Area Director and Vice-Rector for Research (2008-12) and Vice-Rector for Scientific Policy (2019-21); from 2014-21, selected member of the Advisory Council for Innovation and Development of the Government of Aragón (CONAID), Board Member of the Nanoscience and Molecular Materials Specialized Group-RSEQF and Territorial Section of Aragón-RSEQ.
In my contribution to **scientific dissemination** I point my participation, as researcher, in VII Scientific Documentary Script and Production Workshop of UCC-UNIZAR funded by FECYT, co-scripting and filming the video *Liquid Crystals: The Hidden Materials* (2016), 3 sessions at "Science of cinema"-"Cineforum Program" (2017-18), “Science Immersion Week” or “UNIZAR-Kids” for high school and E.S.O. students, “ICMA presentation days” (2014-16) or non-scientific items in journals. As VRPC, in charge of UCC-UNIZAR, projects FCT-20-16307 (FECYT) and S-TEAM/NIGHT SPANISH TEAM (EU).
My experience in LC and functional organic materials contribute the outreach and growth of molecular materials in Spain, invited classes in all the National Schools of Molecular Materials (since 2000); and Postgraduate degrees at the Univ. of Concepción (Chile) (2005 and 2017). My research and teaching activity in Organic Chemistry I promoted and driven topics in UNIZAR studies such as Materials Science (Chemistry Degree) or Supramolecular Chemistry (Chemistry Degree and Masters).

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(10 last years, representative publications)*

- M. Castillo-Vallés, C. Folcia, J. Ortega, J. Etxebarria, M.B. Ros*. *Self-assembly of bent-core amphiphiles joining the ethylene-oxide/lithium ion tandem. J. Mol. Liq.,* 381, 121825 (2023).
- M. Blanca Ros*. *Supramolecular Versatility of Bent-Shaped Molecules. Supramolecular Nanotechnology: Advanced Design of Self-Assembled Functional Materials. Vol. 2. Chapter 24*. pp. 641 - 666. (Eds. Omar Azzaroni, Martin Conda-Sheridan), Wiley-VCH Verlag GmbH, Wenheim (Germany) (2023). ISBN:9783527349487. (Editors´ invitation).
- I. Domínguez, *et al*, M.B. Ros, A. Martínez-Felipe*. *Light-responsive bent-core liquid crystals as candidates for energy conversion and storage. J. Mater. Chem. C,* 10, 18200 (2022). JIF: 8.067/2021
- Marta Martínez-Abadía, ‡Shinto Varghese, Johannes Gierschner*, Raquel Giménez* M. Blanca Ros* *Luminescent assemblies of pyrene-containing bent-core mesogens: liquid crystals, p-gels and nanotubes. J. Mater. Chem. C,* 10, 12012 (2022). JIF: 8.067/2021
- Castillo-Vallés, M.; Romero, P.; Sebastián, V.*; Ros, M.B.* *Microfluidics for the rapid and controlled preparation of organic nanotubes of bent-core based dendrimers. Nanoscale Adv.,* 3, 1682 (2021). JIF: 4.553/2020

- Castillo-Vallés, M.; Cano, M.; Bermejo-Sanz, A.; Gimeno, N.; Ros, M.B.* *Towards supramolecular nanostructured materials: Control of the self-assembly of ionic bent-core amphiphiles. J. Mater. Chem. C,* 8, 1998 (2020). JIF: 7.393/2020
- Castillo-Vallés, M.; Martínez-Bueno, A.; Giménez, R.; Sierra, T.; Ros, M.B.*. *Beyond liquid crystals: New research trends for mesogenic molecules in liquids. J. Mater. Chem. C,* 7, 14454 (2019). JIF: 7.393/2020
- M. Martínez-Abadía, R. Giménez* and M. B. Ros*. *Self-Assembled α-Cyanostilbenes for Advanced Functional Materials. Adv. Mater.* 30, 1704161 (2018). JIF: 21.950/2017
- M. Martínez-Abadía, B. Robles-Hernández, M. R. de la Fuente, R. Giménez*, M. B. Ros*, *Photoresponsive Cyanostilbene Bent-Core Liquid Crystals as New Materials with Light-Driven Modulated Polarization. Adv. Mater.,* 28, 6586 (2016). JIF: 21.950/2017
- Nélida Gimeno & M. Blanca Ros*. *Chemical structures, mesogenic properties and synthesis of liquid crystals with bent-core structures. Handbook of Liquid Crystals. Volumen 4. Smectic and columnar liquid crystals.* Part. IV. *Bent-core liquid crystals*. pp. 603 - 679. (Eds. John W. Goodby, Peter J. Collings, Takashi Kato, Carsten Tschierske, Helen Gleeson, Peter Raynes), Wiley-VCH Verlag GmbH, Wenheim (Germany) (2014). ISBN: 978-3-527-32773-7. (Editors´ invitation).
- M. Cano, A. Sánchez-Ferrer, J. L. Serrano, N. Gimeno, M. B. Ros*. *Supramolecular Architectures from Bent-Core Dendritic Molecules. Angew. Chem. Int. Ed.*, 53, 13449, (2014). JIF: 11.261
- N. Gimeno, J. Vergara, M. Cano, J. L. Serrano, M. B. Ros*, J. Ortega, C. L. Folcia, S. Rodríguez-Conde, G. Sanz-Enguita, J. Etxebarria. *Janus-Type Dendromesogens: A Tool to Control the Nanosegregation and Polar Organization of Bent-Core Structures. Chem. Mater.,* 25, 286, (2013). JIF: 8.535
- N. Gimeno, R. Martín-Rapún, S. Rodríguez-Conde, J. L. Serrano, L. Folcia, G. M. Pericás, M. B. Ros*. *"Click chemistry" as a versatile route to synthesize and modulate bent-core liquid crystalline materials. J. Mater. Chem. C,* 22, 16791 (2012). JIF: 6.108/2013

C.2. Congress *(10 last years, representative oral communications)*

- 28th International Liquid Crystal Conference (ILCC2022). Lisbon (Portugal). 2022. *"Exploiting our know-how in liquid crystals: strategies to benefit from mesogens´supramolecular interactions"*. R. Giménez, T. Sierra, M. Martínez-Abadía, M. Castillo-Vallés, C. Auria-Soro, ***M. B. Ros.*** Plenary.
- 15th European Conference on Liquid Crystals. Wroclaw (Polonia). 2019. *"TEG-decorated bent-core molecules: Liquid crystalline and further supramolecular possibilities"*. ***Ros, M. B.,*** Cano, M., Castillo-Vallés, M., Zatón, D., Bermejo-Sanz, A, Gimeno. Invited Keynote.
- 27th International Liquid Crystal Conference. Kyoto (Japan). 2018. *"Self-assemblies of pyrene containing bent-core mesogens: luminescent liquid crystals, gels and nanotubular aggregates"*. M. Martínez-Abadía, S. Varghese, J. Gierschner, R. Giménez, ***M. B. Ros.*** Invited Keynote.
- European Conference on Liquid Crystals 2015. Manchester (U.K.). 2015. *"Cyanostilbene bent-shaped molecules: A Route to Functional Materials"*. M. Martínez-Abadía, B. Robles-Hernández, B. Villacampa, M. R. de la Fuente, S. Varghese, B. Milián-Medina, J. Gierschner, R. Giménez, ***M. B. Ros.*** Invited Keynote.
- 15th International Conference on Ferroelectric Liquid Crsytals. Praga (Czech Rep.). 2015. *"Bent-core structures as versatile building blocks for polar self-assembling systems"*. N. Gimeno, M. Cano, A. M. Bermejo-Sanz, J. Vergara, J. L. Serrano, M. C. López, A. Sánchez-Ferrer, D. O. López, C. Folcia, R. de la Fuente, ***M. B. Ros.*** Invited Keynote.
- XXV Reunión Bienal de Química Orgánica. Alicante (Spain). 2014. *"Supramolecular Chemistry Based on Bent-Core Molecules"*. M. Cano, N. Gimeno, P. Romero, J. L. Serrano, ***M. B. Ros.*** Invited Keynote.
- 24rd International Liquid Crystal Conference. Mainz (Alemania). 2012. *"Supramolecular architectures from bent-core based dendritic molecules"*. ***Ros, M. B***, Gimeno, N., Cano, M., Vergara, J, Romero, P, Serrano, J. L**.** Invited Keynote.

C.3. Research projects *(10 last years)*

- **PID2021-122882NB-I00.** *Nanoarquitecturas funcionales inspiradas en fases cristal liquido.* MICINN. 175.450 €. 2022 – 2025. IP: M Blanca Ros y Raquel Giménez (INMA). Researchers: J. L. Serrano, J. Barberá, A. Omenat, S. Uriel.

♦ **PGC2018-093761-B-C31.** *Estrategias supramoleculares para la optimización de materiales orgánicos.* MICINN. 157.300 €. 2019 – 2021. IP: Teresa Sierra (ICMA - Coordination). Researchers (ICMA): ***M B Ros***, R. Giménez, S. Uriel.

♦ **MAT2015-66208-C3-1-P.** *Organizaciones cristal liquido como base para el desarrollo de materiales organicos funcionales nanoestructurados: diseño, sintesis y caracterizacion.* MINECO. 107.800 €. 2016 – 2018. IP: Teresa Sierra (ICMA - Coordination). Researchers (ICMA): ***M B Ros***, R. Giménez, S. Uriel.

♦ **MAT2012-38538-C03-01.** *Materiales funcionales auto-organizados.* 70.000 €. 01.01.2013 - 31.12.2015**.** Investigador Principal: Teresa Sierra (ICMA - Coordination), César Folcia (UPV), David López (UPC). Researchers (ICMA): ***M B Ros,*** R. Giménez, S. Uriel, E Cavero, B. Feringan.

♦ Cristales líquidos y Polímeros. Gobierno de Aragón – Research groups. **E04, E47_17R, E47_20R,** IP: JL Serrano Ostáriz (UNIZAR). **E47_E23R.** IP: T. Sierra (CSIC) Researchers: ***M B Ros*** + group members.

♦ **MAT2009-14636-C03-01.** *Materiales supramoleculares funcionales: Diseño, preparación y caracterización.* MICINN. 242.000 €. 01.01.2010-30.06.2013**.** IP: ***M B Ros*** (UNIZAR - Coordination), César Folcia (UPV), David López (UPC). Researchers (UNIZAR): R. Giménez, S. Uriel, T. Sierra, N. Gimeno, E. Beltrán.

♦ **PIPAMER (10/015).** *Mecanobiología e ingeniería de la regeneración del cartílago.* IACS. 24.000 €. 01.01.2011- 31.12.2012**.** IP: José Manuel García Aznar (I3A-UNIZAR). Researchers: ***M B Ros***, T. Sierra.

(Selected previous relevant research projects and networks)

♦ **MAT2006-13571-C02-01.** *Materiales ópticos y optoelectrónicos basados en organizaciones mesomorfas: Diseño, preparación y caracterización.* MEC**.** 216.000 €. 01.10./2006 - 30.9.2009. IP: ***M. B. Ros*** (UNIZAR - Coordination), César L. Folcia (UPV-EHU). Researchers (UNIZAR): R. Giménez, S. Uriel, T. Sierra, I. Pintre.

♦ **MAT2003-07806-C02-01.** *Materiales moleculares cristal liquido para aplicaciones en electronica molecular.* MEC**.** 172.500 €. 01.12./2003 - 30.11.2006. IP: ***M. B. Ros*** (UNIZAR - Coordination), César L. Folcia (UPV-EHU). Researchers (UNIZAR): J. L. Serrano, M. Marcos, R. Giménez, T. Sierra, A. Omenat.

♦ **BRITE-EURAM BRPR-CT97-0486**. *New Photoselective Processes for flat panel fluorescent displays. (PHOTOFLU)*. CEE. 187.600 € (UNIZAR). 01.01.98 - 31.12.00. Coordinator: D. J. Broer (Philips Research Labs, The Netherlands). Leaders: J. L. Serrano (Univ. Zaragoza, España), J. Stumpe (Univ. Postdam, Germany), T. Jacobs (Merck GMBH, Germany), K. Bastiaansen (TU/e Eindhoven, The Netherlands). Participant: Participants: M. Marcos, ***M. B. Ros***, J. Barberá, T. Sierra, L. Oriol (Univ. of Zaragoza, Spain).

♦ **BRE2-CT92-0202.** *Active and passive optical components based on "in-situ" formed anisotropic liquid-crystalline polymeric systems. (APOCALIPS)*. CEE. 189.000 € (UNIZAR). 01.11.92 - 31.10.95. Coordinator: D. J. Broer (Philips Research Labs, The Netherlands). Leaders: D. Coates (Merck Ltd., England), J. C. Marchon (CEA/DSM, France), J. L. Serrano (Univ. of Zaragoza, Spain). Participant: ***M. B. Ros*** L. Oriol, M. Piñol (Univ. of Zaragoza, Spain).

♦ **HPRN-CT2000-00016**. *Super Molecular liquid crystal dendrimers*. EU. 156.618 € (UNIZAR). 01.08.00 - 31.09.04. Coordinator: G. Mehl, (Univ. of Hull, UK). Leaders: D. Guillon (ICPMS-Strasbourg, France), J.L. Serrano (Univ. of Zaragoza, Spain), D. Photinos (Univ. of Patras, Grecia), K. Tchierske (Univ. of Halle, Germany), C. Cruz (Ins. Sup. Técnico of Lisbon, Portugal), J. Vij (Univ. of Dublin, Ireland). Participants: J. Barberá, ***M. B. Ros***, L. Oriol, M. Piñol, P. Cerrada, A. Omenat (Univ. of Zaragoza, Spain).

♦ **FMRX-CT97-0121.** *Molecular design of funtional liquid crystals*. EU. 168.000 € (UNIZAR). 01.11.97 - 31.10.01. Coordinator: J. Goodby, (Univ. of Hull, UK). Leaders: G.R. Luckhurst (Univ. of Southampton, UK), D. Guillon (ICPMS-CNRS, Strasbourg, France), C. Zannoni (Univ. of Bologna, Italy), J.L. Serrano (Univ. de Zaragoza, Spain), D. Photinos (Univ. of Patras, Greece), P.L. Nordio (Univ. of Padua, Italy), A. Fariña (Ins. Sup. Técnico of Lisbon, Portugal), G. Kothe (Univ. of Freiburg, Germany). Participants: M. Marcos, ***M. B. Ros***, J. Barberá, T. Sierra, L. Oriol (Univ. of Zaragoza, Spain).