CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	Marta		
Family name	Mas Torrent		
Gender	Female	Birth date	16/06/1975
ID number	38113841N		
e-mail	mmas@icmab.es	https://molecularelectronics.icmab.es	
Open Researcher and Contributor ID (ORCID) (*)		A-3485-2013 / 0000-0002-1586-005X	

A.1. Current position

Position	**Full Professor CSIC**		
Initial date	September 2022		
Institution	CSIC, Instituto de Ciencia de Materiales de Barcelona (ICMAB)		
Country	Spain	Tel. Nº	935801853
Key words	Molecular materials, molecular electronics, organic transistors		

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

Period	Position/Institution/Country/Interruption cause
2014-2022	**Investigador Científico CSIC**
2007-2014	**Científico Titular CSIC** Instituto de Ciencia de los Materiales de Barcelona (Spain) (**3 maternity leaves: 2007, 2009, 2013**)
2005-2007	**Ramón y Cajal Researcher** Instituto de Ciencia de los Materiales de Barcelona (Spain)
2002-2005	**Postdoctoral Researcher** Technical University of Delft (The Netherlands)
1998-2002	**PhD** Instituto de Ciencia de los Materiales de Barcelona (Spain) The Royal Institution of London (UK)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor Chemistry	University of Barcelona	1997
PhD Chemistry	UAB/ICMAB-CSIC	2002

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

I carried out my PhD at the Institute of Materials Science of Barcelona (ICMAB-CSIC) with Prof. C. Rovira and at the Davy-Faraday Lab. at The Royal Institution (Ri) of Great Britain with Prof. P. Day. My research was focused on the preparation of multifunctional molecular materials (e.g. conductivity/magnetism). During my PhD, I performed visits to other prestigious international groups at Techn. Institute of Lisbon and Lodz University. Building upon my chemistry background, I moved to perform a 2.5 year postdoc in the Quantum Transport Group at Physics Department of the Kavli Institute of Delft University of Technology (TUDelft, The Netherlands). There, taking advantage of my organic materials expertise, I started a new research line on the fabrication of organic field-effect transistors (OFETs). My work there resulted in very important papers that have been considered "*breakthrough*" by ESI and which have been highly cited (JACS 2004, 126, 984 (333 citations), JACS 2004, 126, 6544 (175 citations), JACS 2004, 126, 8546 (260 citations)). In December 2004 I gained a tenured prestigious Ramón y Cajal position and joined the Molecular NanoScience and Organic Materials Department at ICMAB-CSIC. Just two years later (2007) I achieved a permanent research position and last year I was promoted to Full

Professor. Thanks to my interdisciplinary background, during my scientific career at ICMAB-CSIC **I boosted the integration of organic molecules into more advanced electronic devices,** at the molecular level, and also in large-area devices, especially in OFETs.

In 2012 I was awarded with an **ERC StG** project and later on an **ERCPoC project**. These grants gave me the opportunity to start my own research group. I have also participated in many other European and National Projects as well as in two industrial related projects. I am co-author of around **190 publications (H=39, aprox. 6000 citations**) and inventor of 7 patents, for one of which a license agreement option was signed.

I received the **2013 Oliver Kahn International** Award for my contributions in the field of materials science and the **Prize of Young Researcher 2006** of the Spanish Royal Society of Chemistry (RSEQ). My work was awarded also at European Materials Research Society (2008) and has been selected to be included in special issues: Women at the Forefront of Chemistry (ACS Omega 2018) and "Women in Materials Science" (Adv. Mater. 2022).

I have given more than 30 Invited talks and 45 oral contributions in **conferences** and have been involved on the organization of:
2022 Chair of the "workshop on electrical and optical active molecular materials for bio-applications", Bellaterra, ca. 80 attendees.
2022 Organising Commettee: "Intern. Conf. Organic Semiconductors: From Principles to Applications", Mainz, ca. 120 attendees.
2015-2019 Organization of three ICMAB Workshops on Organic Electronics.
2018 Organization of an EMRS Symposium, ca. 100 attendees.
2015 Chair of the Inter. Workshop on Organic Electronics&Spintronics, Barcelona, ca. 80 attendees.
2011 Scientific Secretary of the 11th Eur. Conf. Molecular Electronics, Barcelona, ca. 300 attendees.

Regarding **institutional responsibilities and advisory boards**, I would like to highlight:
- Since 2015: Member of the Executive Advisory Board of Severo Ochoa project of ICMAB-CSIC and coordinator of the Molecular Electronics Research Line.
- Board Member of Nanoscience and Molecular Materials Group of RSEQ (2013-2017).
- ICMAB-CSIC Representative of the NFFA infrastructure project (FP7, 2008-2010).
- Since 1/1/2022, colaborator of Agencia Estatal de Investigación Científica (AEI) in the area of Materials.
- Advisory Board Member of J.Mater.Chem C (RSC), Materials Advances (RSC), APL Energy (AIP) and Bionics and Biomimetics (Frontiers).
- Guest Editor of a special issue in "Frontiers in Physics.
- Evaluator of EU FET projects and National Projects from Spain, UK, Switzerland, France, USA, Romania.
- Member of the Panel of AEI for National Projects in Materials Science (2021).
- Jury Member of tenured postdoc (RyC, JdC) and permanent positions.
- Member of national and international PhD Committees.

I directed **14 PhD Thesis**, two of which have been awarded with the Extraordinary PhD prize of UAB and one with the RSEQ PhD prize.
I have also participated in dissemination programs such as: talks in schools, IBERCAJA program, project FECYT-EU "Las científicas cuentan" with several talks and a promotional video, YOUTUBER program, etc. Finally, my work has been highlighted in different media like newspapers (La Vanguardia, El Periódico), at Adv. Science News, UAB, etc.

Currently, I am leading an interdisciplinary group focused on the design and preparation of new functional molecular materials for their application in organic electronic/electrochemical devices. Our work ranges from fundamental studies in order to better understand materials properties to a more applied perspective aiming at developing proof-of-principle devices.

Part C. RELEVANT MERITS

C.1. Selected publications (citations from Web of Science)

1) *Morphology and mobility as tools to control and unprecedentedly enhance X-ray sensitivity in organic thin-films.*
I.Temiño, L. Basiricò, I. Fratelli, A. Tamayo, A. Ciavatti, M. Mas-Torrent,* B. Fraboni.*
Nature Communications **2020**, 11:2136. (35 citations)

2) *Label-free immunodetection of α-synuclein by using a microfluidics coplanar electrolyte-gated organic field-effect transistor.*
S. Ricci, S. Casalini, V. Parkula, M. Selvaraj, D. Deniz, P. Greco, F. Biscarini, M. Mas-Torrent.*
Biosensors and Bioelectronics **2020**, 167, 112433. (25 citations)

3) *Control of polymorphism and morphology in solution sheared OFETs.*
S. Galindo, A. Tamayo, F. Leonardi, M. Mas-Torrent.*
Adv. Funct. Mat., **2017**, 27,1700526. (72 citations)

4) *Electrolyte-gated OFET based on a solution sheared organic semiconductor blend.*
F. Leonardi, S.Casalini, A. Zhang, S.Galindo, D. Gutiérrez, M. Mas-Torrent.*
Adv. Mater. **2016**, 28, 10311. (40 citations)

5) *An Electrically driven/readable molecular monolayer switch based on a solid electrolyte.*
E. Marchante, N. Crivillers, M. Buhl, J. Veciana, M. Mas-Torrent.*
Angew. Chem. Int. Ed. **2016**, 55, 368. **HOT PAPER** (19 citations)

6) *Single crystal-like performance in solution-coated thin-film OFETs*
F. G. del Pozo, S. Fabiano, R. Pfattner, S.Georgakopoulos,S.Galindo, X. Liu, S.Braun, M. Fahlman, J. Veciana, C. Rovira, X. Crispin, M. Berggren, M. Mas-Torrent.*
Adv.Funct.Mater., **2016**, 26, 2379. (80 citations)

7) *Surface-confined electroactive molecules for multistate charge storage information*
M. Mas-Torrent,* C. Rovira, J. Veciana*
Adv. Mater. **2013**, 25, 462. (49 citations)

8) *A robust molecular platform for non-volatile memory devices with optical and magnetic responses*
C. Simão, M. Mas-Torrent, N. Crivillers, V. Lloveras, J. M. Artés, P. Gorostiza, J. Veciana,* C. Rovira*
Nature Chem. **2011**, 3, 359. (169 citations)

9) *Role of molecular order and solid-state structure in organic field-effect transistors.*
M. Mas-Torrent,* C. Rovira*
Chemical Reviews, **2011,** 111, 4833 (418 citations).

10) *High mobility of dithiophene-tetrathiafulvalene single-crystal organic field effect transistors.*
M, Mas-Torrent,* M. Durkut, P. Hadley, X. Ribas, C. Rovira.
J. Am. Chem. Soc. **2004**, 136, 984. (333 citations). **Considered "*breakthrough*" by ESI**.

C.2. Congress: >30 Invited and >45 Oral Contributions. Selected international lectures:

1) Intern. Conf. on Interface Properties In organic and Hybrid Electronic (IPOE) 2022 (INVITED)

2) European Conference on Molecular Spintronics (ECMolS), 2022 (INVITED)

3) Materials Research Society (MRS), Boston (USA), 2016 and 2020 (INVITED)

4) International conf. on Organic Electronics (ICOE), Hasselt (Belgium) 2019 (INVITED.)

5) Intern. Conf. Molecular Magnetism (ECMM), Bucarest (Romania), 2017. (INVITED)

6) Field effect transistor Workshop, Minneapolis (USA), 2016. (INVITED)

7) European Conf. on Molecular Magnets (ECMM), Karlsruhe (Germany), 2013. (PLENARY)

8) SPIE Conference on Optics and Photonics, San Diego (USA), 2015. (INVITED)

9) European Materials Research Society (EMRS), Lille (France), 2015. (INVITED)

10) International Conference of Synthetic Metals (ICSM), Turku (Finland), 2014. (INVITED)

C.3. Selected research projects

1) ERASAM: "Preparation of electrodes functionalised with electroactive molecules and characterisation of their electrocatalytic properties" (2023-2024), AEI, MCINN-Next Generation EU; Transición ecológica, ref. TED2021-132550B-C22; 155.135 €. IP: N. Crivillers, M. Mas-Torrent.

2) CARESS: "Low-cost and rapid point-of-care bio-sensors for diagnosis". Prueba de Concepto. (2022-2023), MCINN-Next Gen. EU; PDC2021-121511-I00; 95. 000 €. PI: M. Mas-Torrent.

3) GELLY-SENS: "Hydrogels as novel solid-electrolyte organic field-effect transistors for bio-sensing" (1/9/2021-30/8/2023), Severo Ochoa FUNFUTURE, Call FRONTIER INTERDISCIPLINARY PROJECTS (FIP). 70.000 €. PI: M. Mas-Torrent.

4) GENESIS: " *Engineering, preparation and characterisation of organic-based high performing electronic devices for sensing applications and for the development of new emerging technologies"* (2020-2023); Spanish Ministry, PID2019-111682RB-I00; 350 k€. PI: M. Mas-Torrent/N. Crivillers.

5) UHMob: "*Ultra-high Charge Carrier Mobility to Elucidate Transport Mechanisms in Semiconductors*" **H2020-MSCA-ITN-2018** (2019-2023); 250.900 €. PI: M. Mas-Torrent.

6) BIOPAD: "*Biosensor platform for the diagnosis of Alzheimer desease*" Spanish Ministry MAT2015-72760-EXPLORA (1/5/2017-30/4/2019), 55 k€ PI: M. Mas-Torrent.

7) FANCY:" *Functional organic materials for the Fabrication of sensors and (spin)-electronic/memory devices*" (2017-2019); Spanish Ministry, CTQ2013-40480-R; 290 K€. PI: M. Mas-Torrent/C. Rovira.

8) "*HI-TECH platform for LABel-free biosensors*" TecnioSpring- **Marie Curie" TECSPR15-1-0012** (15/3/2016- 15/3/2018); 133 k€ PI: M. Mas-Torrent

9) **ERC Proof-of-Concept:** "*Large Area Organic Devices with bar assisted meniscus shearing technology*". Grant Agreement: 640120; 1/12/2014-30/5/2016; 150 K€. PI: M. Mas-Torrent.

10) **ERC Starting Grant:** "*Surface Self-Assembled Molecular Electronic Devices: Logic Gates, Memories and Sensors*". Grant Agreement: 306826; 1/12/2012-30/10/2018; 1500 k€. PI: M. Mas-Torrent.

C.4. Contracts, technological or transfer merits.

Patents

1) "An electrolyte gated field effect transistor". 24/4/2019;EP19382312.7, WO2020216901A1.

2) "Fabrication process of an organic semiconductor film, organic semiconductor film and electronic device containing it". Nº. ES P201430839, 2/6/2014. PCT/ES2015/070427

3)"Method of obtaining patterns in an organic substrate and organic material thus obtained" Nº: ES 200501879; 29-10-05, (WO2007014975).

4)"Method for obtaining derivatives of dichalcogenophene-tetrachalcogenofulvalene" NºES 200602663; 20-10-06, COUNTRIES: CE, PCT/ES2007/070170; WO2008046949.

5)"Organic sensor device and its applications." Nº: ES2299392 DATE: 14-11-2006, COUNTRIES: CE, PCT/ES07/070184 (WO2008059095). **License Agreement Option**.

6) "Sensor contact lens, system for the non-invasive monitoring of intraocular pressure and method for measuring same" Nº: P200801722; 8/6/2008, COUNTRIES: CE; PCT/ES/2009/070205 (WO2009147277).

7) "Molecular hydrophobic/hydrophilic switch, device and method to control the surface wettability", Nº: ES P201130164; 8/2/2011.

Contracts/agreements with companies

8) Colaboration with HOLST (Eindhoven) through a "José Castillejos fellowship" (2018).

9) Two industrial related projects with CETEMMSA. "Preparation of organic conducting films as alternative to ITO" (1/1/2008-30/6/2008) and "Conducting films for developing ink-jet printing" (21/12/2008-30/62009). 63 k€. IP: Marta Mas-Torrent.