

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	Xavier		
Family name	Ramis		
Gender (*)		Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)			

(*) *Mandatory*

A.1. Current position

Position	Full profesor (catedrático)		
Initial date	2011		
Institution	Universitat Politècnica de Catalunya		
Department/Center	Department of Heat Engines / Barcelona School of Industrial Engineering (ETSEIB)		
Country	Spain	Teleph. number	934016592
Key words	Thermosets, Dual Curing, Click Chemistry, Thermal Analysis, Vitrimers, 3D-printing		

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

Period	Position/Institution/Country/Interruption cause
1987-1991	Assistant professor (Different positions)
1991-2011	Associate professor (TEU, TU)

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Chemical sciences (degree)	Universtat de Barcelona	1985
Chemical sciences (PhD)	Universitat Politècnica de Catalunya	1994

(Include all the necessary rows)

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

In 1987, I started my doctoral studies at the Barcelona School of Industrial Engineering, Universitat Politècnica de Catalunya, in the field of unsaturated polyester resins under the supervision of Dr. Josep María Salla. Starting from a formative pre-doctoral stage, my academic career advanced coherently, with added responsibilities throughout my post-doctoral studies. After serving as principal investigator in various state-funded projects, I have coordinated the inter-university research group "Thermosetting Epoxy Polymers" which is recognized by the Catalan government (Generalitat de Catalunya).

Throughout these years, I also participated in projects of knowledge transfer to the manufacturing industry through several contracts, agreements, and patents. My research activities and technological development projects focused primarily on thermal analysis and polymeric materials, especially thermosets. I worked with polymer concrete, thermosetting resins as continuous matrices for composites, interpenetrating polymer networks, thermal curing and photocuring coatings, bio-compatibilization of non-biodegradable polymeric residues, low shrinkage thermosetting materials, polymeric membranes for fuel cells, thermosets based on epoxy resins and dentritic with improved properties, and other type of polymeric materials.



Since 2000, my research group has been collaborating with the polymer research group of Universitat Rovira i Virgili. We have developed numerous RDI projects and contracts. Since our two joint project in 2014 and 2017, we have been developing novel dual-curable thermosets based on click chemistry, for advanced technological applications such as materials with shape memory capability, dielectric layers with high thermal conductivity and currently vitrimers and reprocessable, repairable and recyclable thermosets. The promising results obtained in these projects encourage us to continue developing new dual-curing systems to diversify their use in advanced applications such as reprocessable thermosets for sustainable three-dimensional printing. During the last 4 years we have been working with 3D printable vitrimeric thermosets under the funding of our two last project entitled “3D additive manufacturing” and “Dual processing of vitrimers. 3D Printing”.

I must stress that my research activity did not proceed in an isolated manner, rather it was marked with collaborations with research groups from other institutions, universities and countries. Among these collaborations, the ones that stand out are with the group Leibniz Institut Polymerforschung (Dresden) lead by Dr. Brigitte Voit, the research group in Politecnico di Torino, lead by Dr. Marco Sangermano) and the CIM Foundation from the UPC.

General indicators

Six-year research periods (sexenios): 5

Date of last granted: 01/01/2020

Number of thesis supervised: 9

*Number of citations: 5855

*Total publications: 227

*Total publications in the first quartile (Q1): 140

*124 Co-authors

*h Index: 43

17 peer-evaluated RDI projects (11 as scientific coordinator)

150 contracts/agreements with companies (10 with special relevancy)

173 conference contributions

15 book chapters

2 patents (one with global extension)

40 graduation projects / master theses supervised

*scopus January 2024

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (see instructions)

- 1 Scientific paper.** Moradi, S.; Fernandez-Francos, X.; Konuray, O.; **Ramis, X.**, 2023, Recyclable dual-curing thiol-isocyanate-epoxy vitrimers with sequential relaxation profiles, European polymer journal, 196: 112290.
- 2 Scientific paper.** Konuray, O.; Fernandez-Francos, X.; **Ramis, X.**, 2023, Structural design of CANs with fine-tunable relaxation properties: a theoretical framework based on network structure and kinetics modeling, Macromolecules. 56: 4773- 5228.
- 3 Scientific paper.** Guerrero, F.; de la Flor, S.; **Ramis, X.** ; Santos, J.; Serra, M. À., 2022, Novel hybrid organic/inorganic poly(thiourethane) covalent adaptable networks, European Polymer Journal, 174: 111337.
- 4 Scientific paper.** Casado, J.; Konuray, O.; Roig, A.; Fernandez-Francos, X.; **Ramis, X.**, 2022, 3D printable hybrid acrylate-epoxy dynamic networks, European Polymer Journal, 173. Número: 111256.
- 5 Scientific paper.** Konuray, O.; Moradi, S.; Roig, A.; Fernandez-Francos, X.; **Ramis, X.**, 2022, Thiol-Ene Networks with Tunable Dynamicity for Covalent Adaptation, ACS Applied Polymer Materials, 5: 1651-1656.
- 6 Scientific paper.** Konuray, O.; Altet, A.; Bonada, J.; Tercjak, A.; Fernández-Francos, X.; Ramis, X., 2021, Epoxy doped, nanoscale phase-separated poly-acrylates with potential in 3-D printing, Macromolecular Materials and Engineering, 306: 32767-32778.



- 7 **Scientific paper.** Konuray, O.; Fernandez-Francos, X.; Ramis, X.; Serra, M. À., 2018, New allyl-functional catalytic comonomers for sequential thiol-Michael and radical thiol-ene reactions, *Polymer*, 138: 369-377.
- 8 **Scientific paper.** Konuray, O.; Fernandez-Francos, X.; Ramis, X., 2017, Analysis of the reaction mechanism of the thiol-epoxy addition initiated by nucleophilic tertiary amines, *Polymer Chemistry*, 8: 5934-5947.
- 9 **Scientific paper.** Fernandez-Francos, X.; Konuray, O.; Belmonte, A.; de la Flor, S.; Serra, M. À.; Ramis, X., 2016, Sequential curing of off-stoichiometric thiol-epoxy thermosets with a custom-tailored structure. *Polymer chemistry*, 7: 2280-2290.
- 10 **Scientific paper.** González, G.; Fernandez-Francos, X.; Serra, M. À.; Sangermano, M.; Ramis, X., 2015, Environmentally-friendly processing of thermosets by two-stage sequential aza-Michael addition and free-radical polymerization of amine-acrylate mixtures. *Polymer Chemistry*, 6.: 6987-6997.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

- 1 **Poster.** Roig, A.; Ramis, X.; De la Flor, S.; Serra, M. À. A study of eugenol-based dual-curing systems with dynamic exchangeable bonds. EUPOC 2023 Dynamic polymer network: 14-18 May, 2023, Bertinoro, Italy.
- 2 **Poster.** Roig, A.; Petrauskaitė, A.; Ramis, X.; de la Flor, S.; Serra, M. À. Preparation of New Vitrimeric Materials Based on Glycidyl Vanillin-imines. Bordeaux Polymer Conference: 13-16 June, 2022, Bordeaux, France.
- 3 **Oral presentation.** Konuray, O.; Moradi, S.; Fernandez-Francos, X.; Serra, M. À.; Ramis, X.; Morancho, J. Stress-relaxing thermosets with easily regulated bond exchange kinetics. GEP-SLAP 2022 - XVI Reunión del Grupo Especializado de Polímeros. XVII Simposio Latinoamericano de Polímeros. XV Congreso Iberoamericano de Polímeros: 9-13 May, 2022. Donostia, Spain.
- 4 **Oral presentation.** Roig, A.; Petrauskaitė, A.; de la Flor, S.; Ramis, X.; Serra, M. À. Synthesis and characterization of new fully bio-based poly(acylhydrazone) vanillin vitrimers. GEP-SLAP 2022 - XVI Reunión del Grupo Especializado de Polímeros. XVII Simposio Latinoamericano de Polímeros. XV Congreso Iberoamericano de Polímeros: 9-13 May, 2022. Donostia, Spain.
- 5 **Oral presentation.** Konuray, O.; Di Donato, F.; Sangermano, M.; Bonada, J.; Fernandez-Francos, X.; Ramis, X. Dual-curable stereolithography resins for superior thermomechanical properties. VII International Baekeland Symposium: October 15-18, 2019. Tarragona, Spain.
- 6 **Poster presentation.** Di Donato, F.; Fernandez-Francos, X.; Ramis, X.; Morancho, J.; Serra, M. À.; Sangermano, M. Enhancement of the thermal and mechanical properties of 3d-printing formulations using dual-curing. 2nd Journal of Thermal Analysis and Calorimetry Conference: June 18–21, 2019, Budapest, Hungary.
- 7 **Poster.** Serra, M. À.; Fernandez-Francos, X.; Areny, N.; Konuray, O.; Ramis, X. Sequential dual curing: versatility in processing and thermosets characteristics. BPC 2018: Bordeaux Polymer Conference: May 28-31, 2018, Bordeaux, France.
- 8 **Oral presentation.** Konuray, O.; Ramis, X.; Fernandez-Francos, X.; Serra, M. À. Photobase generators as latent catalysts for dual-curable thermoset systems: a kinetic and thermal study. APME 2017: the 12th International Conference on Advanced Polymers via Macromolecular Engineering: May 21-25, 2017, Ghent, Belgium.
- 9 **Invited conference.** Serra, M. À.; Ramis, X.; Fernandez-Francos, X.; de la Flor, S. Tailored thermosets by sequential dual curing based on click reactions. 16th Baltic Polymer Symposium: September 21-24, 2016, Klaipėda, Lithuania.
- 10 **Oral presentation.** Konuray, O.; Fernandez-Francos, X.; Ramis, X.; González, G.; Serra, M. À.; Sangermano, M. Room-temperature dual-curing processing of amine-acrylate-methacrylate mixtures. MACRO2016: 46th IUPAC World Polymer Congress bridging continents & bridging molecules MACRO: 17-21 July 2016, Istanbul, Turkey.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. PID2020-115102RB-C22, Dual processing of vitrimers: 3D printing. AGENCIA ESTATAL DE INVESTIGACION. IP: X. Ramis and X. Fernandez-Francos. 01/09/2021 - 31/08/2024. 133.100,00 €.
2. IU16-011591 POLTEPO, 001-P-001646_BASE 3D GENCAT. 3D additive manufacturing. DEPT. D'EMPRESA I OCUPACIO and FEDER. IP: Xavier Ramis. 01/01/2019 - 31/12/2021. 65.441,46 €.
3. MAT2017-82849-C2-2-R, Advanced thermosetting materials obtained by click methodology AGENCIA ESTATAL DE INVESTIGACION. IP: Xavier Ramis. 01/01/2018-31/12/2020. 108.900 €.
4. MAT2014-53706-C3-2-R, New multifunctional thermosets obtained by dual curing. Ministerio de Economía y Competitividad (MINECO). IP: Xavier Ramis 01/01/2015-31/12/2017. 60.500,00 €.
5. MAT2011-27039-C03-02, New and improved thermosets based on epoxy resins and dendritic polymers. Ministerio de Ciencia e Innovación (MICINN). IP: Xavier Ramis. 01/01/2012-31/12/2014. 60.000,27 €.
6. MAT2008-06284-C03-02, New nanostructured hybrid thermosets with improved properties using epoxy resins and hyperbranched polymers. Ministerio de Ciencia e Innovación (MICINN). IP: Xavier Ramis. 01/01/2009-31/12/2011. 96.788,99 €.
7. 2009 SGR 1512, Thermosetting Epoxy Polymers. AGAUR. Agència de Gestió d'Ajuts Universitaris i de Recerca. IP: Xavier Ramis. 17/07/2009-30/04/2014. 49.920 €.
8. Thermoset With Improved Toughness by Using New Functional Hyperbranched Precursors (Acciones Integradas Hispano-Alemanas). Comisión Interministerial de Ciencia y Tecnología. IP: Àngels Serra Albet. 01/01/2008-01/01/2009.
9. MAT2004-04165-C02-02, Curing of photopolymer materials. Ministerio de Ciencia e Innovación (MICINN). IP: Xavier Ramis. 13/12/2004-13/12/200. 67.180,00 €

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any

1. **Contracts**. UPC S-01610 Contracts with different companies: Basf Sonatrach Propanchem, Powder Coatings Solutions, ASCIL-Biopharm, Keyland, etc. Responsible Researcher: Xavier Ramis Juan. 01/12/2012-31/12/2023. 120.000 €.
2. **Patent**. Àngels Serra Albet; Xavier Fernandez Francos; Xavier Ramis Juan; Jose Maria Morancho Llena. P201530523. Composición para el entrecruzamiento de una amina con un compuesto vinílico alfa,beta-conjugado a un grupo carbonilo de éster y posterior polimerización del compuesto vinílico y procedimientos correspondientes España. 17/04/2015. Universitat Politècnica de Catalunya/Universitat Rovira i Virgili.
3. **Contract**. TQC13028S. Screening of commercially available and development of latent epoxy accelerator systems. Funding entity: Protavic International. Responsible researcher: Àngels Serra Albet. (Centre Tecnologic de la Química de Catalunya). Researchers: Xavier Ramis, Xavier Fernández-Francos. 01/11/2013-01/03/2014. 21.457 €.
4. **Contract**. TQC12007S. Resines tèrmicament conductores per a IMS. Funding entity: GABRIEL BENMAYOR, S.A.. Àngels Serra Albet. (Centre Tecnologic de la Química de Catalunya). Reserchears: Xavier Ramis, Xavier Fernández Francos. 01/2012-6/2013. 58.882 €.
5. **Contract**. Epoxy Thermosets with Increased Reworkability. Funding entity: ABB Sp. z.o.o (Cracovia, Polonia). Àngels Serra Albet (Universitat Rovira i Virgili). Reserchears: Xavier Ramis, Xavier Fernández-Francos. 3/2011-7/2011. 5.000 €.
6. **Contract**. Assessment of modification possibilities of currently used standard epoxy resin in order to make it thermally degradable. Funding entity: ABB Sp. z.o.o (Cracovia, Polonia). Àngels Serra Albet (Universitat Rovira i Virgili). Reserchears: Xavier Ramis, Xavier Fernández-Francos. 4/2010-9/2010. 3.500 €.
7. **Patent**. Àngels Serra Albet; Marjorie Flores Guillen; Ana Mantecón Arranz; Xavier Ramis Juan; Xavier Fernandez Francos; Jose M. Salla Tarrago. WO212/010732A1. Composition and method for cross-linking an epoxy resin with an isocyanate, and cross-linked materials thus obtained. Internacional. 26/01/2012. Universitat Politècnica de Catalunya/Universitat Rovira i Virgili.