

## CURRICULUM VITAE ABREVIADO (CVA)

Manuel Alejandro Presa Soto

### Current position

Position	Profesor Titular de Universidad (Associate Professor)	
Institution	University of Oviedo	
Department/Center	Department	<u>Organic and Inorganic Chemistry</u>
Key words	Polymers, Self-Assembly, Main-Group, Deep Eutectic Solvents, Catalysis	

### Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2006-2009	Marie-Curie Fellow/University of Bristol/UK
2010-2013	Juan de la Cierva Fellow/University of Oviedo/Spain
2014-2019	Ramón y Cajal Fellow/University of Oviedo/Spain
2019-2021	Profesor Contratado Doctor/University of Oviedo/Spain

### Education

Licenciado con Grado-Tesina de Licenciatura	University of Oviedo/Spain	2000
PhD in Chemistry	University of Oviedo/Spain	2005

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

Since 2021, Alejandro Presa has been an Associate Professor of Inorganic Chemistry at the U. Oviedo (Spain). He obtained his Bachelor's degree in Chemistry in 2000. Interested in polymer chemistry, he continued his doctoral studies (2001-2005, P. Asturias-Grant) investigating the design and catalytic activity of polyphosphazenes with chemical functionalities incorporated into chiral  $C_2$ -pockets. After, he conducted a three-year postdoctoral stay (2006-2009) in I. Manners' group (U. Bristol, UK), studying the synthesis and self-assembly of block copolymers with crystalline chains (MEC and Marie-Curie postdoctoral Fellowship). Subsequently, he obtained a Juan de la Cierva contract (2010) to return to U. Oviedo and start his independent career as a group leader. Awarded with a Ramón y Cajal contract (2014) and the later stabilization (2019) as Lecture (PCD), allowed him to consolidate his research group focused on the synthesis and self-assembly of block copolyphosphazenes with defined properties. In late 2019, he joined forces with Dr. J. García (U. Oviedo) to jointly create the Synthetic and Sustainable Chemistry research group (Group of Excellence by U. Oviedo). This new group uses the broad context provided by Green Chemistry to accommodate various research lines focused on the development of sustainable synthetic methodologies leading to high-value chemicals.

**1. Scientific Contributions.** (a) *Data*: coauthor of 61 scientific articles (40 as the main author, 51 in Q1 journals), 3 perspective articles, and 3 book chapters. He presented 42 contributions at national and international conferences (10 invited lectures). Principal Investigator of 10 research projects [3 National; 2 Regional; 1 U. Oviedo; 3 with industry and 1 European Reintegration Grant (ERC)]. He was member of the European action COST-1302-Smart Inorganic Polymers. Currently (2020-) a member of the Editorial Board of Materials Today Communications (Elsevier) and has served as a scientific reviewer for 33 different journals in various chemistry fields. He is an evaluator for the national research agencies of Spain (ANECA) and Chile (CONICYT); and for the Linz Institute of Technology (Austria). (b) *Impact and Multidisciplinarity*: Almost 25% (~30% including 1 Green Chem. and 2 ChemSusChem) of his works have been published in journals ranked under the *General Chemistry* descriptor (3 ANGEW; 2 JACS; 6 Chem. Eur. J.; 2 Chem. Commun.). His works have been cataloged as Very Important Paper (4 times) and Hot paper (2 times) and featured on the Front or Back Cover of their respective issues (5 times). He has received 1360 citations, with 3 articles having over 100 citations (one with over 300 citations). One of his works, ANGEW. 2016, was named the best article of the year by the College of Chemists of Asturias and León. He has been invited to publish two perspective articles (one in Science) and regularly acts as a reviewer for journals of general chemistry (i.e. Science; Nat.



Commun.; ANGEW; JACS); inorganic chemistry (i.e. Inorg. Chem.; Dalton Trans; Organometallics); materials chemistry (i.e. ACS Appl. Bio Mater.; ACS Appl. Mater.; Chem. Mater.) and green chemistry (Green Chem.; ChemSusChem). His contributions have been recognized by ANECA with 3 six-year research periods. He has established fruitful international collaborations with research groups in Chile (C. Valdés and M. L. Valenzuela), Switzerland (E. Hevia), Italy (V. Capriati and P. Sgarbosa), and Germany (A. Staubitz). He has actively participated the European action COST-1302 as a member of the Executive Committee and coordinator of a working group. He has received uninterrupted funding from various entities [European (ERC), national (MEC, MICINN), regional (P. Asturias), and local (U. Oviedo)] in both the *young researcher* and *senior researcher* modalities. He has acted as a scientific international advisor for a FONDECYT project (PI: M. L. Valenzuela. Autonomous U. Chile).

**2. Transfer and Dissemination:** He has established collaborations with industry in the development of new low-gelling-point Agars (Roko S.L.) and in the synthesis of materials with special properties for use in Binder-Jetting applications (Arcelor-Mittal). He has given outreach talks aimed at promoting a scientific career among chemistry students (*The Scientific Career for early stage researchers*, School of Chemistry, Oviedo, 2013)

**3. Training and Mentoring Activities:** He has supervised 5 PhD Theses (one co-tutored with U. Chile), 2 Bachelor's, and 10 Master's Theses [one co-tutored with U. Kiel (Germany)]. Finally, it is worth noting his involvement in the training of young students having supervised more than 30 end-of-degree theses. Out of the 10 Master's Theses supervised, 7 continued their doctoral studies (6 under my supervision), and 4 of the supervised PhDs continue to work as chemists; 3 in the industry (FOCUM S.L. Company; Axalta Coating Systems, and Dupont) and the other at U. Oviedo as a scientific researcher.

## RELEVANT MERITS

### Publications

#### **Selection of scientific papers since 2016 [I am main author in all of them]:**

1. Formation and reversible morphological transition of bicontinuous nanosphers and toroidal micelles by the self-assembly of crystalline-*b*-coil diblock copolymers. *Angew. Chem. Int. Ed.* **2016**, *55*, 10102-10107 (DOI: 10.1002/anie.201605317)
2. Porous films by the self-assembly of inorganic rod-*b*-coil block copolymers: Mechanistic insights into the vesicle-to-pore morphological evolution. *Soft Matter* **2016**, *12*, 3084-3092 (DOI: 10.1039/c5sm02861b)
3. Reversible morphological evolution of responsive giant vesicles to nanospheres by the self-assembly of crystalline-*b*-coil polyphosphazene block copolymers. *Chem. Eur. J.* **2016**, *22*, 4483-4491 (DOI : 10.1002/chem.201504733)
4. Deep Eutectic Solvents for Cu-catalysed ARGET ATRP under Air Atmosphere. A Sustainable and Efficient Route to poly(methyl methacrylate) using Recyclable Cu(II) Metal Organic Framework. *Green Chemistry*, **2019**, *21*, 5865-5875 (DOI: 10.1039/C9GC02624J)
5. Organolithium-Initiated Polymerization of Olefins in Deep Eutectic Solvents under Aerobic Conditions. *ChemSusChem* **2019**, *12*, 3134 – 3143 (*selected as VIP-article*)(DOI : 10.1002/cssc.201900533)
6. Fast and Chemoselective Addition of Highly Polarized Lithium Phosphides Generated in Deep Eutectic Solvents to Aldehydes and Epoxides. *ChemSusChem* **2020**, *13*, 4967–4973 (*selected as VIP-article and Front Cover*) (DOI: 10.1002/cssc.202001449)
7. A one-pot two-step synthesis of tertiary alcohols combining the biocatalytic laccase/TEMPO oxidation system with organolithium reagents in aerobic aqueous media at room temperature. *Chem. Commun.*, **2021**, *57*, 13534-13537.
8. Access to Substituted 1,1-Diaryllkanes by Friedel–Crafts Benzylations Mediated by FeCl<sub>3</sub>-based Deep Eutectic Solvents. *ChemSusChem*, **2025**, *18*, e202400892 (1 of 14) (DOI: 10.1002/cssc.202400892)



9. Modular, Tricomponent, and Concurrent One-Pot Synthesis of Libraries of  $\gamma$ -Keto Sulfones and  $\gamma$ -Keto Phosphine Oxides using Brønsted Acidic Eutectic Mixtures. *ChemSusChem*, **2025**, *18*, e202500679 (1 of 11) (DOI: 10.1002/cssc.202500679).
10. Modular, Tricomponent, and Concurrent One-Pot Synthesis of Libraries of  $\gamma$ -Keto Sulfones and  $\gamma$ -Keto Phosphine Oxides using Brønsted Acidic Eutectic Mixtures. *ChemSusChem*, **2026**, *19*, e202501674 (1 of 9) (DOI: 10.1002/cssc.202501674).

## Congress

- **Conferences as Invited speaker**

1. One day in Organometallic Chemistry (premio Madinabeitia-Lourenço 2013 de la RSEQ, Oviedo, España).
2. International Conference on Coordination Chemistry (ICCC-42, 2016, Brest, Francia).
3. III-Congreso de Nanotecnología (2016, Olmué, Chile). **Plenary lecture**
4. Phosphorus, Boron and Silicon Conference (PBSi-2017, Paris, Francia).
5. Polyphosphazenes in Biomedicine, Engineering, and Pioneering Synthesis (254th ACS National Meeting & Exposition, 2017, Washington, USA).

- **Invited Conferences at Research Institutes and Universities**

6. 2013. Ciclo de Conferencias Invitadas. POLYMAT, Universidad del País Vasco (San Sebastián).
  7. 2014. Ciclo de Conferencias Invitadas. CINQUIMA. Universidad de Valladolid (Valladolid).
  8. 2014. Jornadas Doctorales en materiales poliméricos. Universidad de Chile (Chile)
  9. 2015. Ciclo de conferencias en Nuevos Aspectos en Química Inorgánica. Universidad Complutense de Madrid (Madrid)
- Latest Contribution to Conferences\*
10. Formation of C-N bonds using copper-catalysed Goldberg-type reactions in sustainable solvents and under bench conditions. XIII International School on Organometallic Chemistry, Marcial Moreno Mañas, 2022, S. de Compostela. **Poster**

## Research projects (PI)

1. Synthesis and self-assembly of polyphosphazene (PP) block copolymers. Design of new inorganic nanostructures derived from high crystalline or/and chiral high tunable PP block, ERG-UE-10-AP-GAC-256431. ERC (European Research Council). 01/06/2010 – 31/05/2013 (45.000 €)
2. Formación de nanoestructuras funcionalizadas mediante auto-organización de copolímeros de bloques inorgánicos, UNOV-13-EMERG-GIJON-08. Universidad de Oviedo. 01/06/2013 – 31/12/2013 (3.000 €)
3. Síntesis y self-assembly de copolifosfacenos de bloques. Diseño de nanoestructuras basadas en polifosfacenos rígidos y/o quirales, SV-PA-13-ECOEMP-83. FICYT (Principado de Asturias). 01/01/2013 – 31/12/2013 (36.000 €)
4. Formación de nanoestructuras funcionalizadas mediante auto-organización de copolímeros de bloques inorgánicos. GRUPIN14-106 FICYT 2014. FICYT (Principado de Asturias). 01/01/2015 – 31/12/2017 (30.000 €)
5. Preparación de materiales nanoestructurados sensibles a estímulos externos por auto-organización de polímeros químicamente modificables (multi-tool), CTQ2014-56345-P. MEC (Ministerio de Economía y Competitividad). 01/01/2015 – 31/12/2017 (72.600 €)
6. Diseño de nanoestructuras por auto-organización de copolímeros híbridos, de bloques y de injerto, con cadenas cristalinas o quirales, CTQ2017-88357-P. MEC (Ministerio de Economía y Competitividad). 01/01/2018 – 31/12/2020 (82.280 €).
7. Diseño de procesos tándem metal/bio/organocatalizados para la transformación selectiva de moléculas orgánicas insaturadas en disolventes sostenibles [Mezclas Eutécticas, Agua] (DESTANCHEM), PID2020-113473GB-I00. Ministerio de Ciencia e Innovación. 01/09/2021-31/08/2024 (145.200 €).
8. Funcionalización eficiente, selectiva y sostenible de moléculas orgánicas empleando disolventes eutécticos (DESs) y reactivos organometálicos de los grupos representativos (SUSDESCHEM) PID2023-148663NB-I00. Ministerio de Ciencia e Innovación. 01/09/2024-31/08/2027 (198.750 €).

## Contracts, technological or transfer merits,

1. Desarrollo y aplicaciones de nuevos agares técnicos. Proyecto FUIO-233-16. Industrial Partner: ROKO S.L. 01/09/2016 – 31/03/2017 (5200 €).



2. Síntesis de materiales poliméricos para BinderJett. Proyecto FUI-22-334. Industrial Partner: ArcelorMittal Innovación, Investigación e Inversión, S.L. 01/09/2022 – 30/06/2023 (40.000 €).
3. Estudio de recubrimientos en infiltraciones para BinderJetting. Proyecto FUI-23-291. Industrial Partner: ArcelorMittal Innovación, Investigación e Inversión, S.L. 12/09/2023 – 11/09/2024 (40.000 €).