# Ionic liquid based materials as enabling tools for chemical processes

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# Ionic liquid based materials as enabling tools for chemical processes

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Sustainability is not just a challenge, but an opportunity to achieve new breakthroughs in the synthesis of organic compounds. Thus, the development of innovative synthetic methodologies can be attained by the integration of catalytic systems with other enabling techniques. In the last few years, we have intensively explored the combined use of (bio)catalysis and design of advanced multifunctional materials based on Ionic Liquids (ILs) to design greener reactions and processes. Polymeric ILs (SILLPs and PILs) can be applied for catalytic processes in an analogous way to bulk ILs but simplifying product isolation and recycling of the catalyst-IL-phase. [1] Furthermore, the polymer provides an addition design vector to optimize the final characteristics and performance of the related supported ionic liquids-catalyst composites. [2]
An additional factor that increases the sustainability of our developments is the use flow chemistry allowing the full integration of reaction and separation steps. [3-6]
Here, we will report our recent achievements to design synthetic platforms integrating multicatalytic systems, which are able to process sequentially and controllably multiple operations in a mutually compatible manner.

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Eduardo GARCÏA-VERDUGO obtained his chemistry degree from the University of Valencia (1995) and his PhD from the University Jaume I (2001). After working as a researcher at Nottingham University (M. Poliakoff, until 2004), he returned to Spain as a Ramon y Cajal fellow at the University Jaume I until 2009, and then obtained a permanent position as Cientifico Titular at the CSIC-ICP (Madrid, 2008–2010). In 2010, he moved to a permanent academic position at the University Jaume I, working on the integration of different enabling techniques (catalysis, polymers, continuous flow processes, microreactors, bio-catalysis, neoteric solvents) to develop efficient and greener organic transformations.