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Editorial: Editors' showcase: Environmental chemical engineering

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Editorial on the Research Topic Editors' Showcase: Environmental chemical engineering

The objective of this Research Topic was to collect high quality contributions evaluating novel developments, current challenges, latest discoveries and future perspectives, across the scope of our *Environmental chemical engineering* section. In this sense, my opinion is that the objectives have been fulfilled. Among the papers published, we can find perspective papers, reviews and original papers showing the last advances in several *Environmental chemical engineering* topics.

Among chemical engineers, there has been always a discussion on the paradigms of this discipline. Although the first two are clear: the first paradigm—unit operations—at the end of 19th century and the second one in the late 1950s—transport phenomena—a discussion has been alive about the third paradigm. At the beginning of 2000s, it seems that product engineering was recognized as the third paradigm (Woinaroschy, 2016), but science has evolved so fast, together with the birth of worldwide problems where the participation of Chemical Engineering is critical, has pointed out that probably the third paradigm, at least in general terms, should be multidisciplinary. In this sense, current Chemical Engineering works involve fields such as Environmental Sciences, Material Science and Energy.

Environmental sciences and Chemical Engineering have already a consolidated relationship, from wastewater treatment design to bioremediation of soils and polluted gases. Probably the field of biological waste management is less explored from a chemical engineering perspective, and this is the main topic of one of the reviews published Sánchez.

In the case of Materials Science, the amount of studies involving nanomaterials with implications in Chemical Engineering has dramatically increased. From the use of nanoparticles as heterogeneous highly selective and efficient catalysts in classical bulk chemical reactions to their use in environmental remediation, the number of publications grows each month. As example, a paper published is related to the use of graphene for the removal of pollutants in water and wastewater Melo et al. In particular, recent works point graphene as a material with an enormous potential for the development of Chemical Engineering.

Finally, I would like to mention some papers that I particularly like: those related to ambitious nexus of Chemical Engineering with other disciplines, which should have a predominant role: the nexus environment-nanomaterials-renewable energy is a good example (Svetlana et al., 2019), where some emerging works are being published Casals et al.

In summary, Chemical Engineering, and especially *Environmental chemical engineering*, is in a moment of clear expansion due to the interrelationship with other closely related disciplines such as Material Science (with nanomaterials as the main topic) and Energy (especially renewable energy).

Being all these topic of critical importance in the current situation of worldwide scarcity of raw materials and energy, the future of *Environmental chemical engineering* looks brilliant.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

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