Batteries & Supercaps

Cover Profile
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From Battery Manufacturing to Smart Grids: Towards a Metaverse for the Energy Sciences

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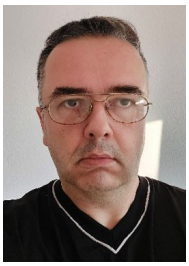

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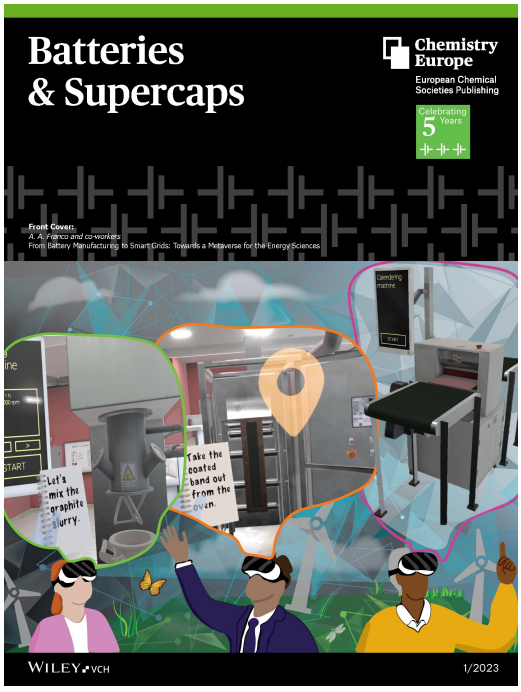
Invited for this month's cover picture is the work from Prof. Alejandro A. Franco's group at the Université de Picardie Jules Verne. The front cover shows three screenshots of the reported virtual reality digital twin of a battery manufacturing pilot line, designed as an educative game to engage students and the general public on battery sciences. Read the full text of the Concept at 10.1002/batt.202200369.

How the idea of using Virtual Reality and Mixed Reality for Batteries Education and R&D started ?

The idea originated ten years ago by Prof. Alejandro A. Franco, when he was thinking on ways to maximize the impact of digital technologies on education, training and popularization of battery sciences.

What future opportunities do you see (in the light of the results presented in this paper)?

We think that our work paves the way towards a metaverse for battery education and collaborative R&D. We are working now in the extension of these games to allow players located in different geographical locations to interact simultaneously through the same virtual or mixed reality environment. We aim to make energy sciences accessible to everyone, without the need of high-tech laboratories or pilot lines.



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What prompted you to investigate this topic/problem?

The need of breaking the barrier between the reality and the virtuality, in order to maximize the impact of digital tools, and computations in particular, in battery education and R&D. We believe that Virtual Reality and Mixed Reality constitute efficient tools for this purpose. Our studies focused also on the user experience of these technologies. In particular, the motivation of the learners and the collaboration between the students were observed to be enhanced greatly.

What was the inspiration for this cover design?

The cover was inspired from the two educative games reported in our Concept: a Mixed Reality one in which players optimize an electrical grid to ensure an electric vehicle to accomplish a mission, and a Virtual Reality digital twin of a battery manufacturing pilot line in which players fabricate battery cells with target properties. The Cover displays some snapshots of the latter with a background of windmills referring to the former.