

Catalytic ceramic electrodes intended for redox flow batteries development and photoelectrooxidation of emerging contaminants (CACERBATOX).

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Abstract:

The aim is to develop ceramic electrodes for two different processes that address two major problems:

- Photoelectrooxidation of emerging pollutants in water, to improve the effectiveness of water treatment plants against this type of pollution, as the known number of these substances is increasing and their effects on the environment and human health are not fully known.
- Redox flow batteries, to increase their efficiency and thus provide a viable alternative for the storage of large quantities of renewable energy, which would facilitate their large-scale deployment. In particular, the improvement of all-vanadium and all-iron batteries, which are among the most promising types, will be investigated.

The starting point will be electrodes previously developed at IUTC, based on antimony-doped tin oxide, which have already demonstrated very favourable electrochemical properties.