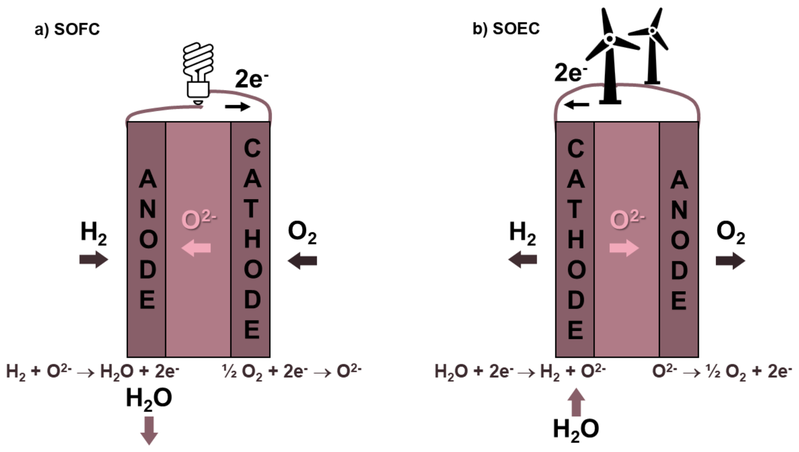
KNOWSKITE-X

Knowledge-driven fine-tuning of perovskite-based electrode materials for reversible Chemicals-to-Power devices

Abstract

The project will demonstrate a science-based approach to the development of electrode materials forming key parts of reversible chemical-to-power cells. Such devices operate in two modes: in fuel cell (FC) mode, it converts hydrogen into electricity whereas when operating as electrolyser cell (EC), it uses excess electricity to form hydrogen from water electrolysis. This versatility enables the integration of intermittent renewable energy sources with the electrical grid by storing the excess energy as carbon-free chemical fuel. In particular, the project targets mixed oxides with perovskite structure with minimised critical content while keeping highest possible performances and targeting fair economic viability.



Objectives

The main objective of the KNOWSKITE-X project is to **boost the development of materials** for energy applications by combining state-of-art approaches together with the empowerment of knowledge discovery allowed by artificial intelligence.

In particular, the project integrates a smart combination of advanced technologies, involving tailor-made materials preparation, harmonised and ground-breaking characterisation methods, multi-scale modelling and AI-enabled tools.

Methodology

This corpus of open-minded, innovative, reliable, and use-relevant methodologies targets the discovery of the scientific knowledge required to sustain the rational design of optimized candidate electrode materials.

Implementation

Consortium

Project details

Grant Agreement: 101091534

Full Title:
Knowledge-driven fine-tuning of perovskite-based electrode materials for reversible chemical-to-power devices

Acronym: KNOWSKITE-X
Granting authority: HADEA
Topic: HORIZON-CL4-2022-RESILIENCE_01-19
Start Date: 01 January 2023
Type of Action: HORIZON – RIA
Duration: 48 months
EU Contribution: 5,168,000 €

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More info
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