



2023

KOREA EUREKA Day

Meet with **SPAIN**

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Ministry of Trade,
Industry and Energy



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ORGANIZATION/COMPANY

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PARTNERSHIPS FOR Korea –
Spain collaboration

Organization / Company

General description

CERCA Research Centre, with a TECNIO accreditation.
IREC has a dual approach:



Market orientation

Market Orientation focusing on **technology development**, **new products** and **new technical solutions** for energy sector companies active in the same fields as IREC's established lines of action.

Long-term research

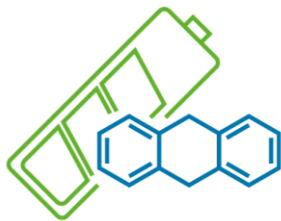
Long-term research into different aspects of the established lines of action. It will not be initially aimed at the market, but at **generating knowledge** amongst groups in the Institute itself, with a **long-term commercial projection** in mind.



Organization / Company General description



Energy & Environment



Energy Storage



Smart Energy
Management

175

people

116

publications

9.5

average IF

16

PhD thesis

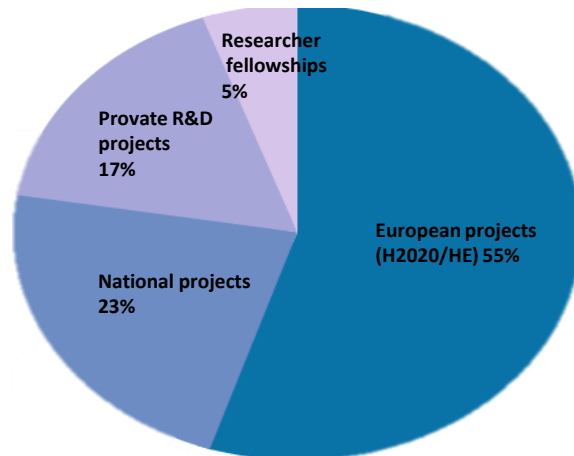
4

patent
applications

3

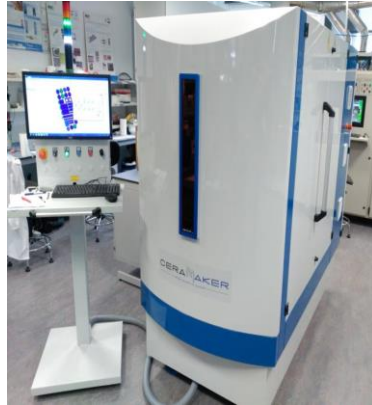
spin-offs

total

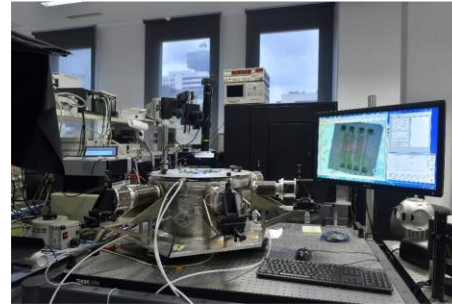


R&D capabilities

Large-area ceramic Manufacturing



Test stations up to 10 kW

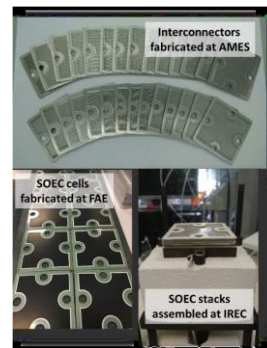
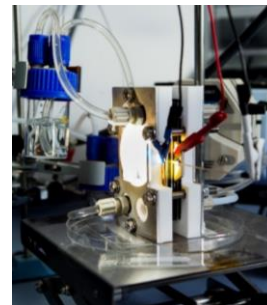


R&D capabilities

Structural and chemical characterization



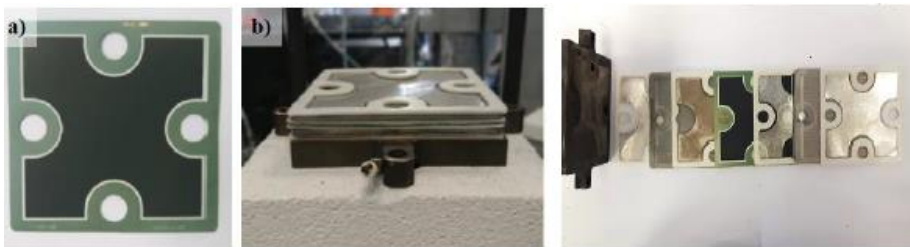
Prototyping



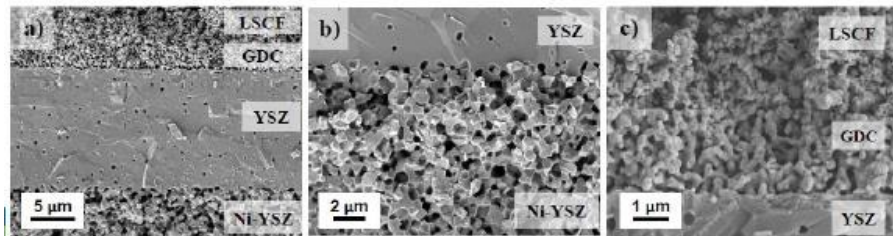
SOC Technologies

Conventional SOC:

Large area own cells + interconnects = SRU and SHORT STACKS

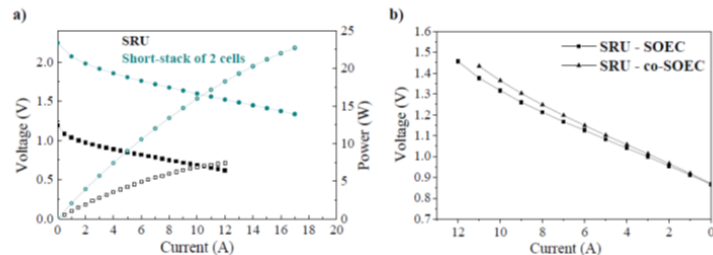


Reliable industrial fabrication (FAE&AMES)

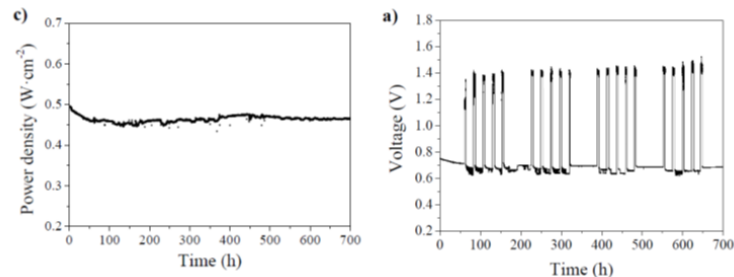


Reversible mode:

Able to operate in **fuel cell and electrolysis modes**



Technology **stable in the 100 h range and reversible**



SOC Technologies Projects:



Scaling up SOEC stacks for kW-range systems



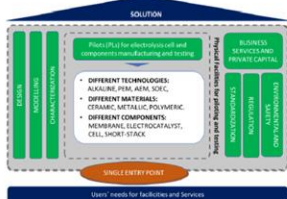
Image of the first prototype of SOEC fabricated in collaboration with the Catalan companies FAE and AMES



CLEANHYPRO



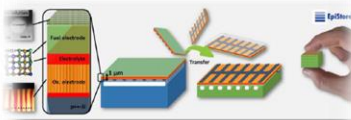
Open Innovation Test Bed for Electrolysis Materials for Clean Hydrogen Production



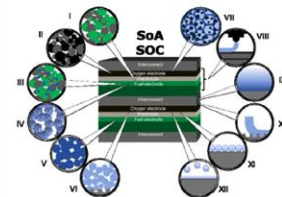
PL	Title of PL	Type of PL	PL owner & contact
PL.1	AET electrode fabrication route	Manufacturing	Freunhofer
PL.2	CCM manufacturing based on spatial ALD	Manufacturing	TNO, SALDO, GARTON
PL.3	Nanostructured materials printing	Manufacturing	Freunhofer
PL.4	Testing of PEM electrolysis cell stacks	Testing	Freunhofer
PL.5	Advanced CCM manufacturing and assembly line	Manufacturing	Seculife
PL.6	MBA (Membrane Electrode Assembly) testing line	Testing	SEC
PL.7	3D printing for fabrication of complete SOEC cell stacks	Manufacturing	IREC
PL.8	Advanced electrode manufacturing for membrane SOEC	Manufacturing	IREC
PL.9	SOEC testing pilot line	Testing	VTT



Thin Film Reversible Solid Oxide Cells for Ultracompact Electrical Energy Storage

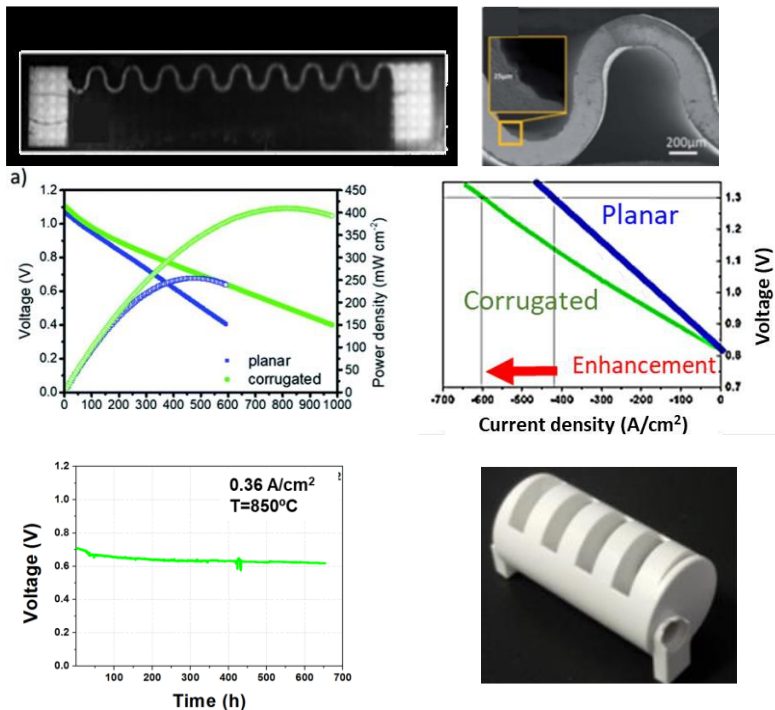


Next Generation solid oxide fuel cell and electrolysis technology



Technologies

3D printing: enhanced by design



Catalysis

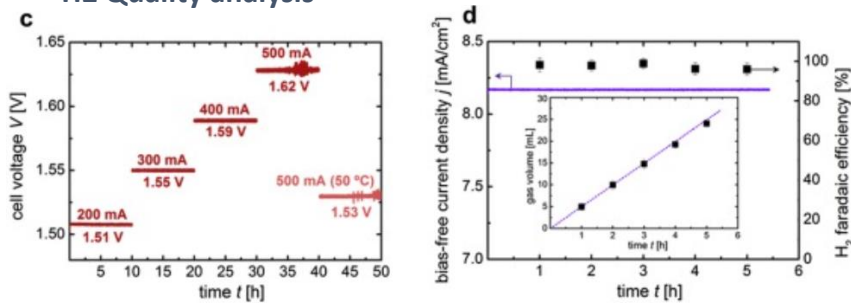
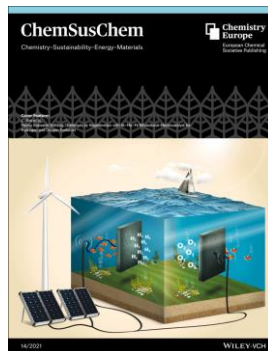
Photocatalysis (PC)

Electrocatalysis (EC)

Photoelectrocatalysis (PEC)

Capabilities:

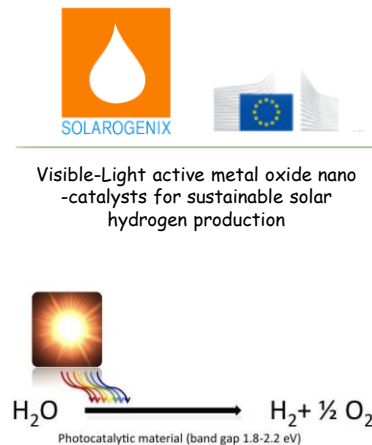
- Catalyst development
- Photo-active materials development
- Cell design, modelling and scale-up
- Seawater electrolyzers
- H₂ Quality analysis



3D printing and high pressure



Catalysis



Looking for partners

- Ceramic powder suppliers
- Cells, seals and current collector manufacturers.
- Companies interested in:
 - SOFC for Aviation and Naval applications.
 - Customized fuel cells (size, power, others).

Meet with SPAIN

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Thank you!



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