



PERSONA CIÈNCIA EMPRESA
TECH TRANSFER

SUCCESSFUL R&I IN EUROPE 2019

EUROPEAN NETWORKING EVENT



Circular economy concepts towards the mitigation of greenhouse gases

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GRUP D'ENGINYERIA I SIMULACIÓ
DE PROCESSOS AMBIENTALS IQS



14-15 February 2019 Van der Valk Airporthotel Düsseldorf



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Circular Economy Research Lines

- Leitmotiv: Sustainable engineering following the concepts of a **circular economy**
- Goal: Provide solutions to the current challenges of society: climate change, water scarcity and population growth

Molecular Modeling and Process Simulation

Wastewater Treatment



Greenhouse gases mitigation



Sustainable Energy



Biological treatments

CO₂ capture, F-gases recovery

Biofuels from biomass

Analytical Techniques



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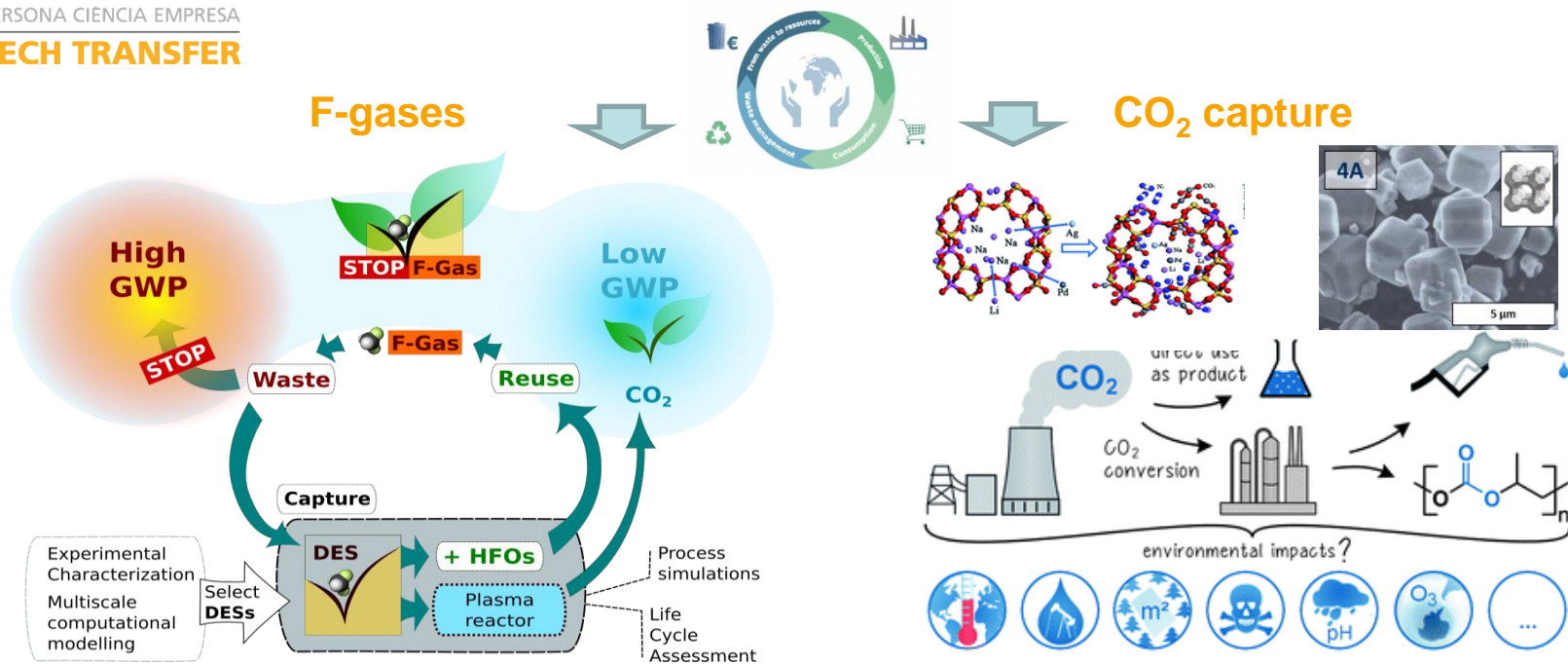
Circular economy concepts towards the mitigation of greenhouse gases: A multiscale approach

- Research Group of sustainable engineering following the **concepts of a circular economy**.
- Engaged on a EU proposal (INTERREG SUDOE call), devoted to the **reduction of the environmental impact of fluorinated gases in the SUDOE space using Key Enabling Technologies** (KET4F-Gas). These gases, commonly used as refrigerants, have a global warming potential (GWP) up to 10000 times higher than CO₂.
- The purpose is to **characterize new materials for recovery (adsorption, absorption, membranes) and to use simulation tools for providing new efficient processes** to achieve the goals related to high GWP F-gases reduction.
- Long **experience in the physicochemical characterization of solvents for CO₂ capture** using computational chemistry modeling.
- Currently applying on an **ERA-NET application (ACT) on CO₂ capture**.



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Circular Economy: Mitigation of GHG

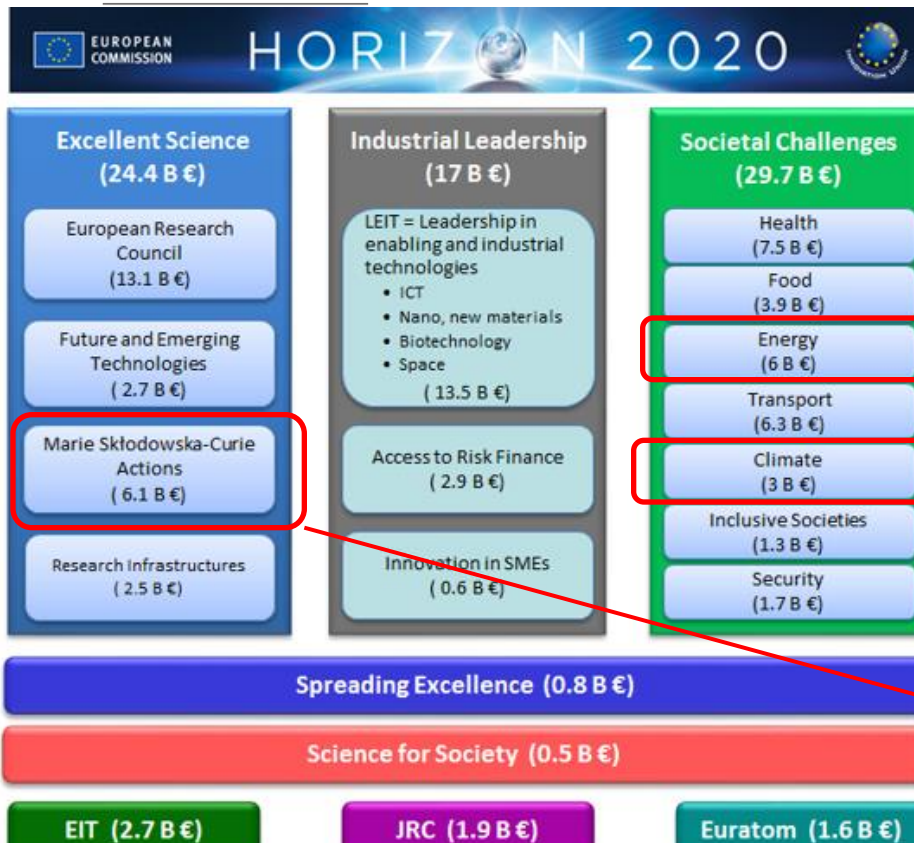


- Expertise on: **Molecular modeling, life cycle analysis, study of new solvents**
- Looking for partners with expertise on: **Synthesis of new materials (membranes, MOFs, zeolites), advanced gas separation processes, pilot plant labs, industrial partnership**

H2020, ERDF & ERA-NET Funding



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1)



Interreg
Sudoe
KET4F-Gas

you can cool it!

www.ket4f-gas.eu

2)



CO₂ capture, utilisation and storage (CCUS).

3) LC-SC3-NZE-5-2019-2020 Low carbon industrial production using CCUS. Single stage:27-08-2019

4) LC-CLA-02-2019:Negative emissions and land-use based mitigation assessment (2nd stage submission Sept 2019)

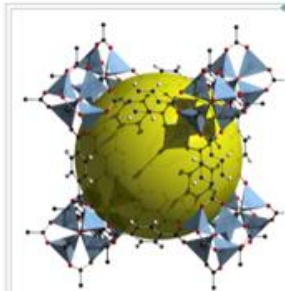
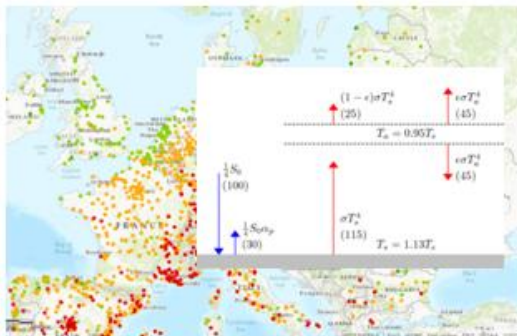
5)MSCA-ITN new generation of researchers in climate control (Jan 2020)



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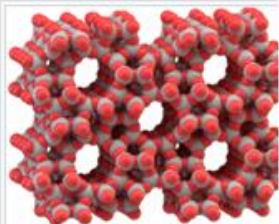
What we look for:

Air quality and GHGs modelling;
greenhouse model,
Barcelona

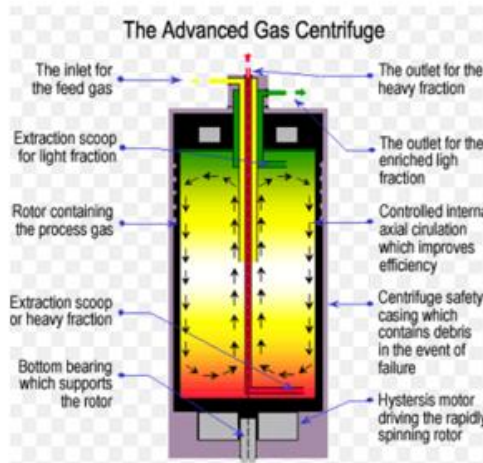


Example of MOF-5

Companies & Academia on Metal-organic frameworks and zeolites



Example of zeolite catalyst



Companies & Academia
Advanced gas separation processes,
Pilot plant labs