



PERSONA CIENCIA EMPRESA
UNIVERSITAT RAMON LLULL

Title: CO₂ capture with innovative radiofrequency heating set-up.

Place: IQS. GESPA research group laboratory

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Summary: Carbon capture technologies are research topics of high interest for nowadays industrial development. The electrification of such processes is the consequential step towards a carbon neutral operation. One promising carbon capture principle is the inductively heated temperature swing adsorption (TSA), that is part of the ongoing project. This operation requests a material to be inductively susceptible and CO₂ adsorbing.

The experimental setup of a laboratory scale fixed bed reactor with an induction coil has been brought to operation and is now ready to investigate critical parameters of such suitable multifunctional materials on their heating and carbon capture performance.

The student will carry out the production and testing of multifunctional materials to gather insights about their sorption and desorption capacities of CO₂ out of a modelled CO₂ rich off-gas stream, along with the materials heating response by induction heating. The following skills and knowledge will be developed:

- Technical understanding of induction heating and temperature swing adsorption processes.
- Operation with technical gases.
- Assembly, start-up and run of induction heated reactor.
- Operating an experimental setup in Labview for temperature control.
- Formulation, production and analysis of multifunctional materials.
- Planning, execution and evaluation of experimental trials.
- Presenting results and technical report writing.