Decarbonization and Energy Transition

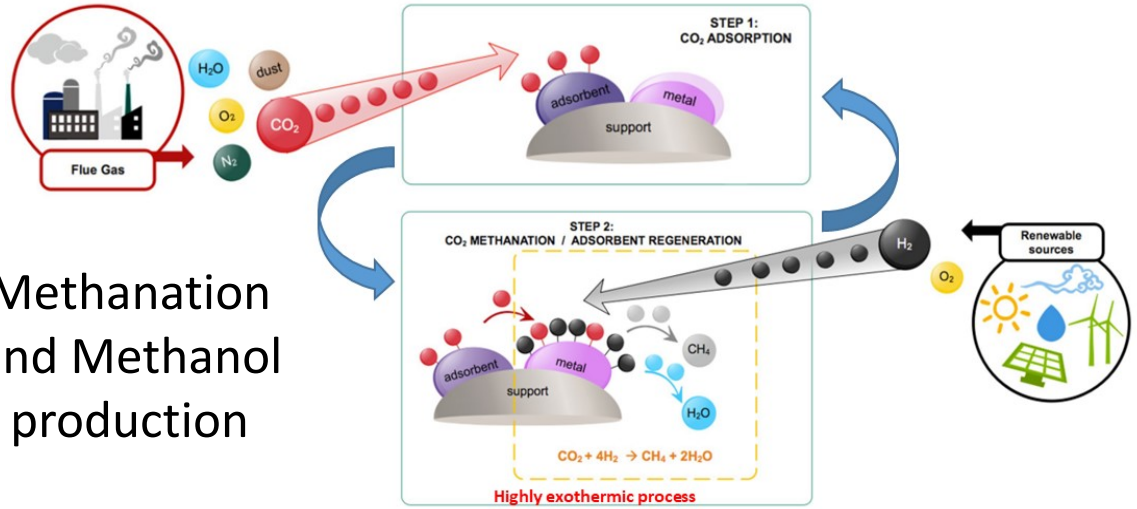
DECARBONIZATION AND ENERGY TRANSITION

The **decarbonisation** of the energy and of mobility sectors requires a fast and substantial change in the mix of energy sources and carriers. The focus of the activities is on the development of processes and technologies for a progressive replacement of petroleum products with energy carriers from Renewable Energy Sources (RES).

During the period of **energy transition**, fossil sources will continue to play a significative role of energy mix. In this context, the use of fossil fuels is addressed with the aim of increasing the efficiency of energy conversion processes by reducing climate-altering emissions

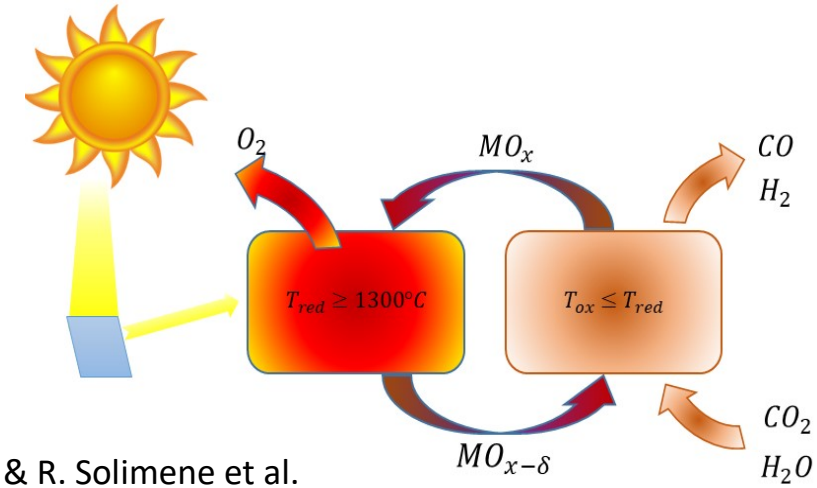
DECARBONIZATION AND ENERGY TRANSITION

Methanation and Methanol production

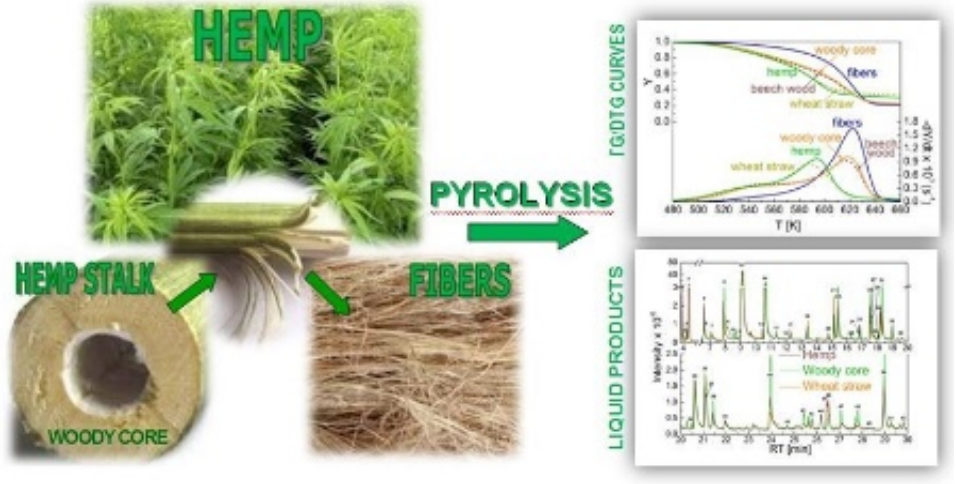


S. Cimino et. al.

Solar thermochemical splitting of H_2O e/o CO_2



G. Landi & R. Solimene et al.



Fluidized Bed Pyrolysis and Gasification of biomasses and wastes

G. Ruoppolo et al.

Pyrolysis and Catalytic Pyrolysis of biomasses in Fixed Bed Reactors

C. Branca

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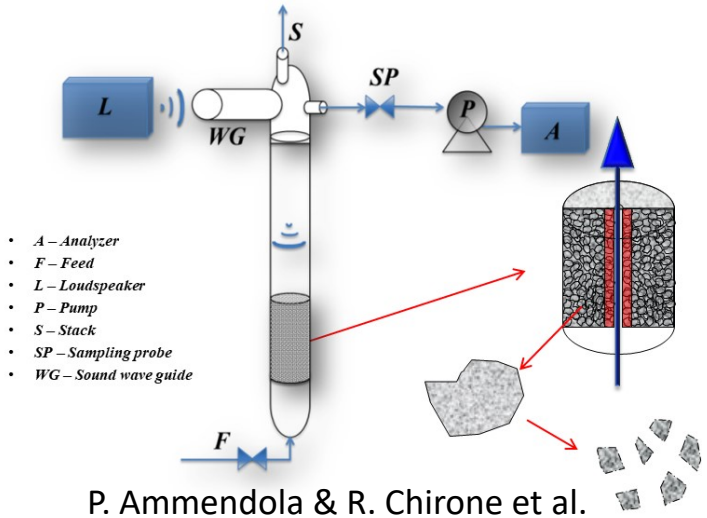
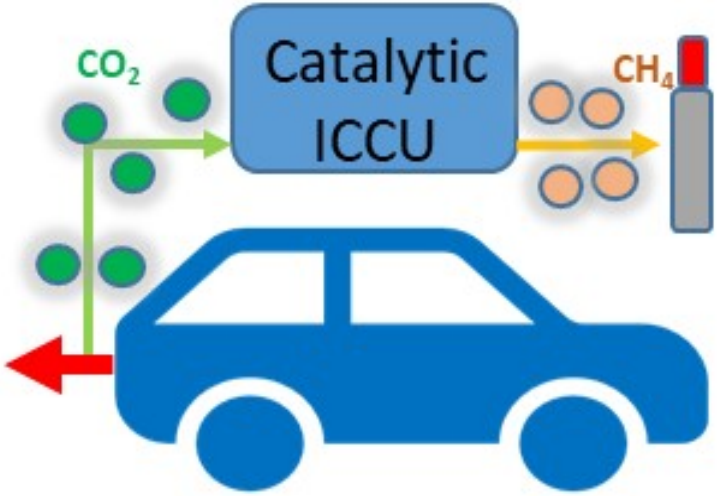
Adsorption of fine powders in sound assisted fluidized beds



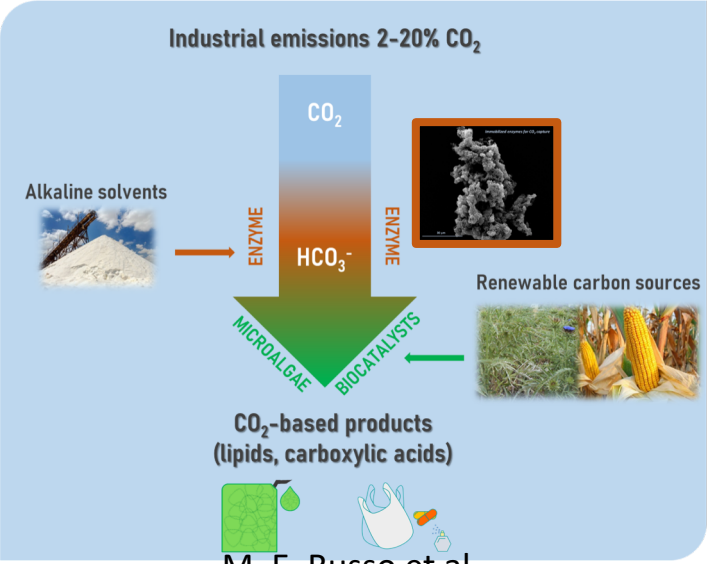
P. Ammendola & R. Chirone et al.

Integrated processes to convert emissions of vehicles into synthetic fuel



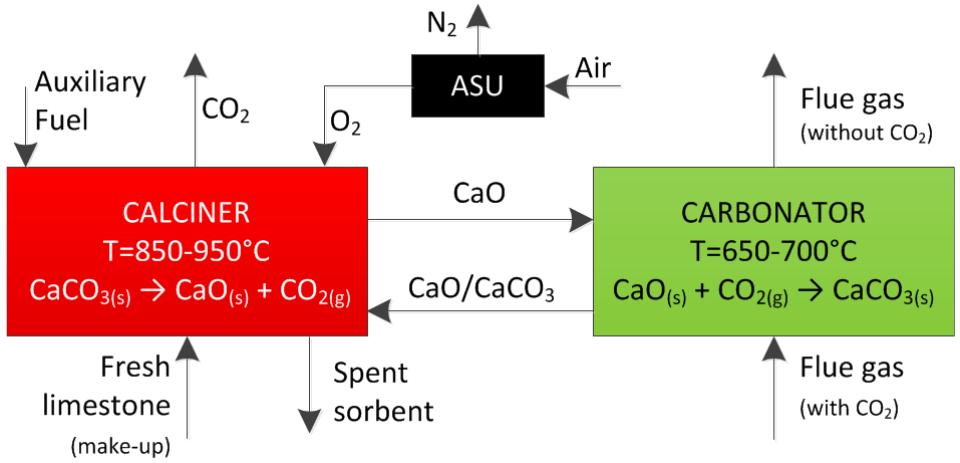
M. V. Prati & M. A. Costagliola et al.

Chemical enzymatic absorption for the production of high added value materials



M. E. Russo et al.

Solar and conventional Calcium looping processes



A. Coppola & R. Solimene et al.

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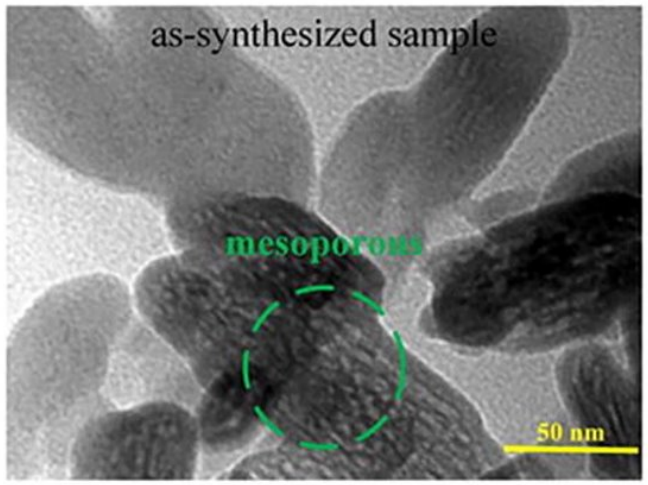
CaL+CLC Materials

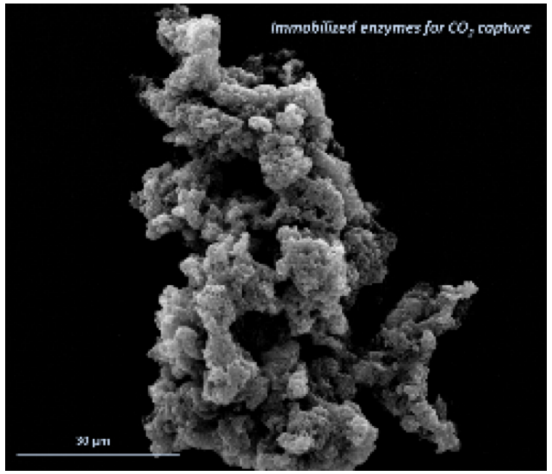


O. Senneca et al.

Capture and Storage of different gasses (CO_2 , CH_4, H_2, H_2O…) on Porous Materials/hybrid powders

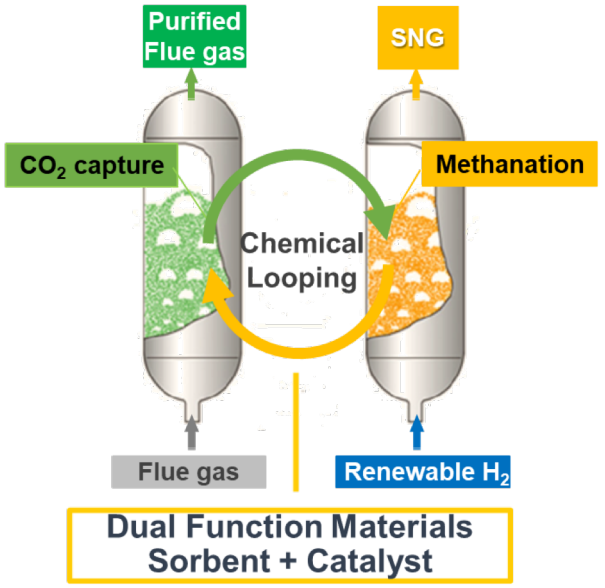
M. Alfé & V. Gargiulo et al.

Immobilized enzymes for simultaneous CO2 capture and fuel production



M.E. Russo & A. Coppola et al.

Innovative catalytic materials



S. Cimino et al.

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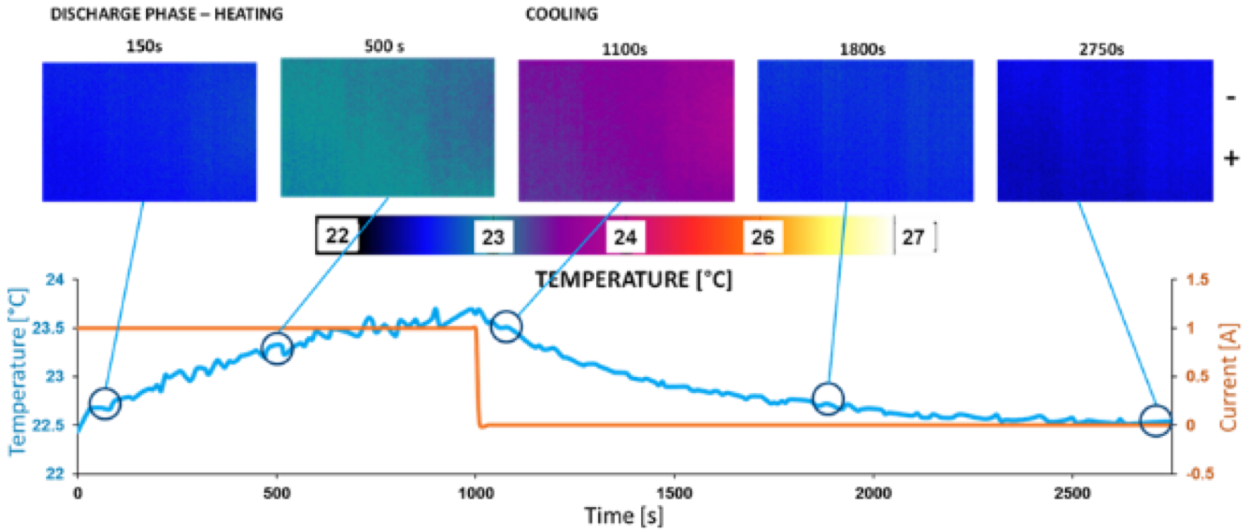
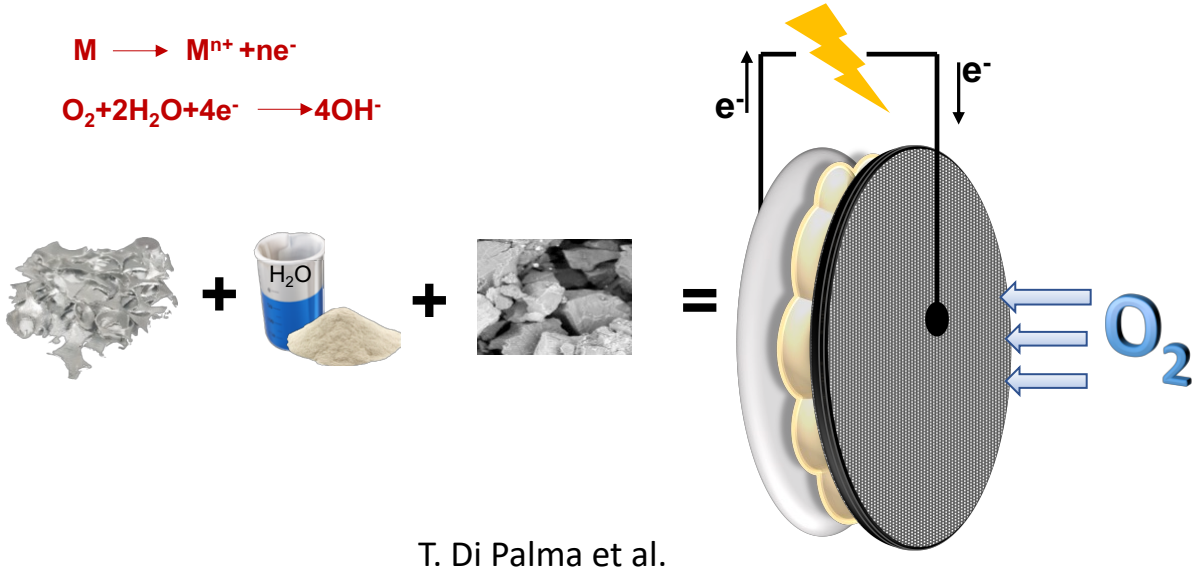
Lithium polymer batteries



L. Sequino et al.

Aluminum/air batteries (post lithium batteries)



T. Di Palma et al.

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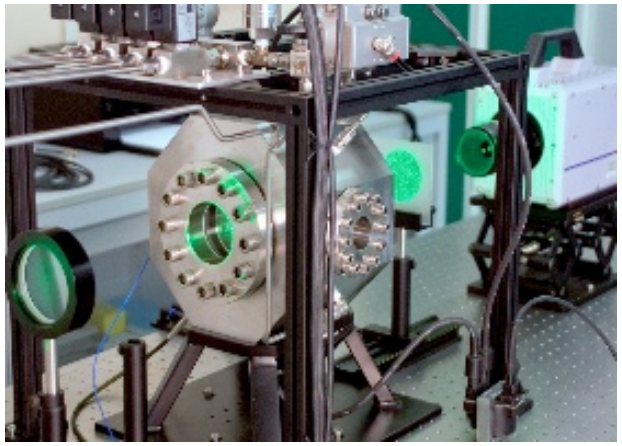
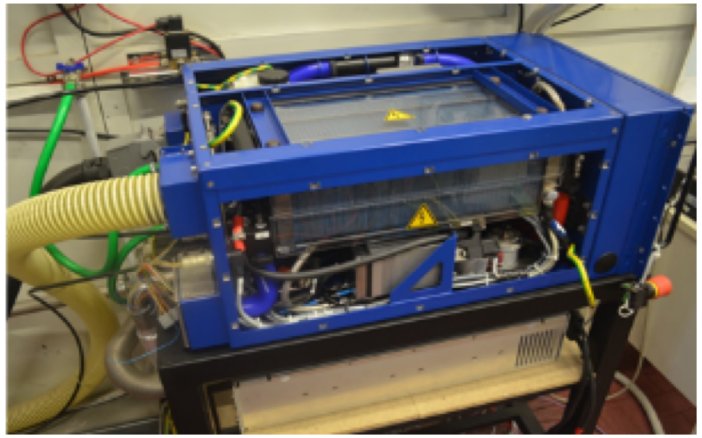
Characterization of non-fossil gaseous fuels (H_2, CH_4, syngas)



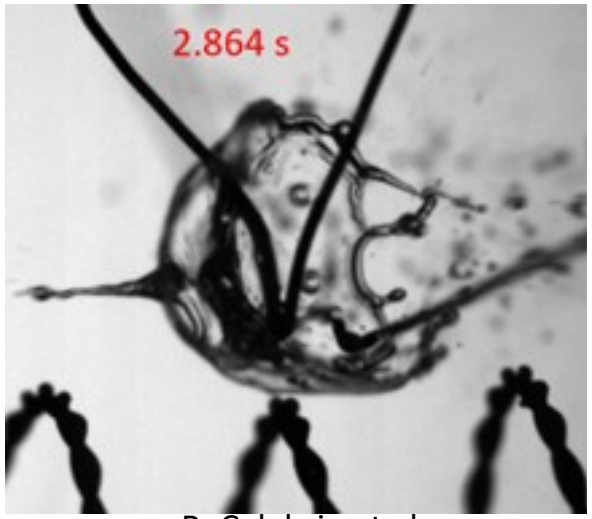
V. Moccia & J. D'Alessio

H2 PEM Fuel Cell



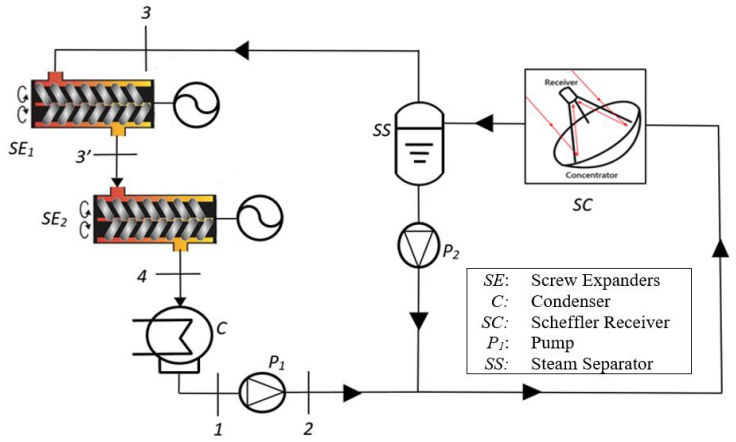
F. Migliardini et al.

Energy from biomass



R. Calabria et al.

Micro-Cogeneration Systems which use renewable sources



F. S. Marra et al.

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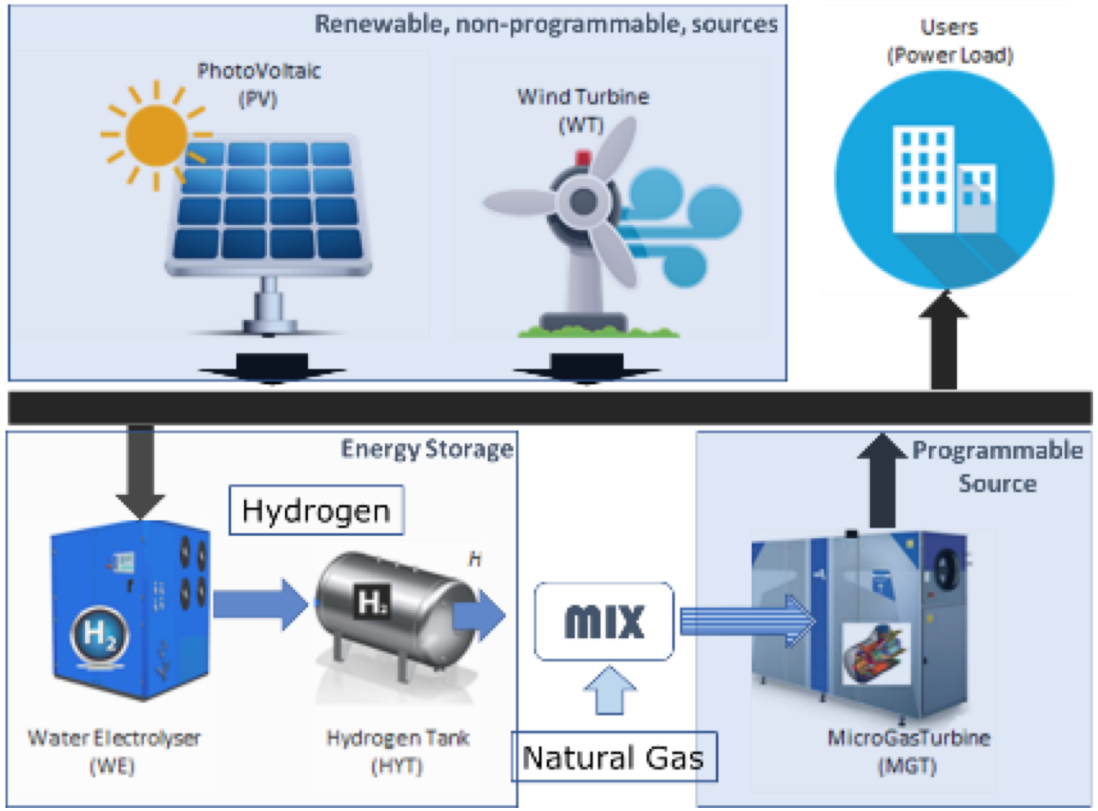
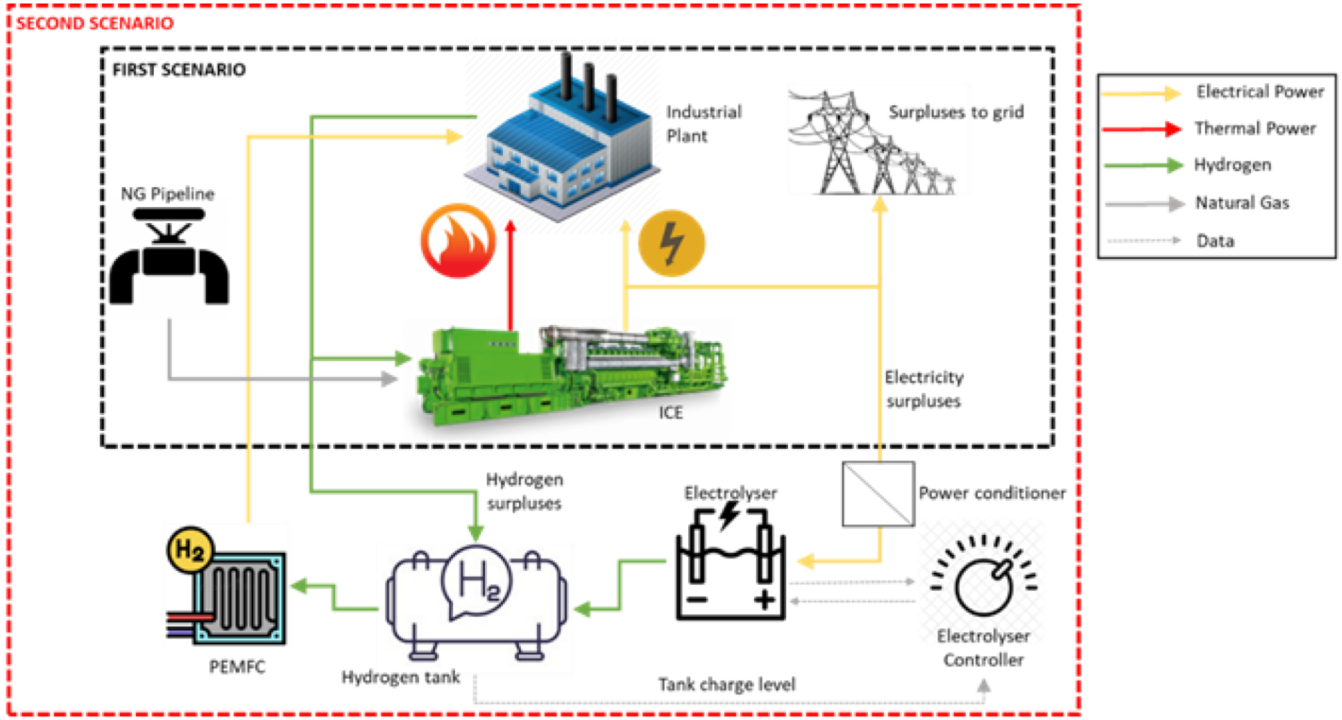
Hybrid Energy Network with hydrogen production, storage and reuse



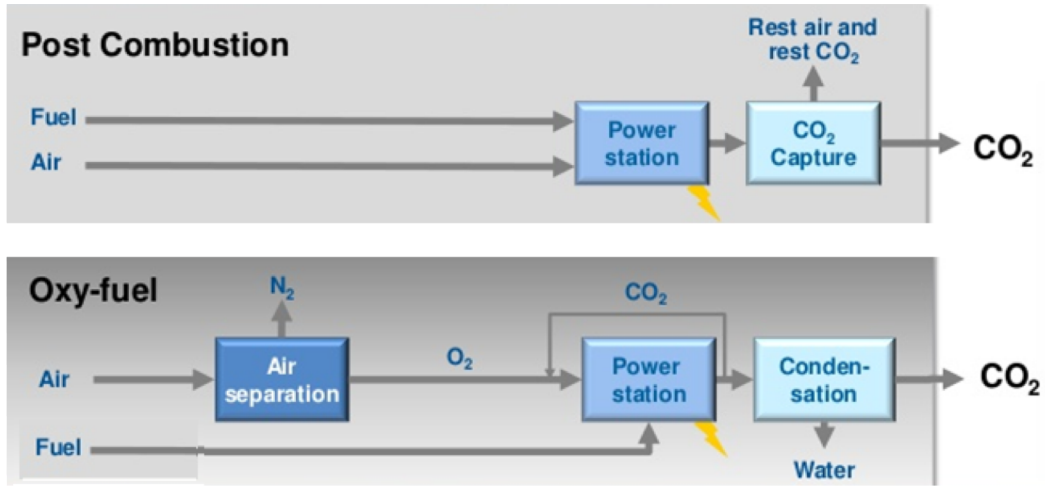
A. di Gaeta, F. Reale et al.

Numerical simulation of changing in the energy mix sources

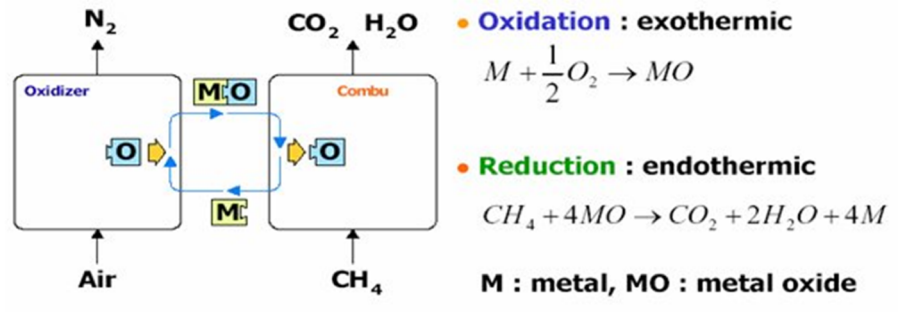


M. Costa et al.

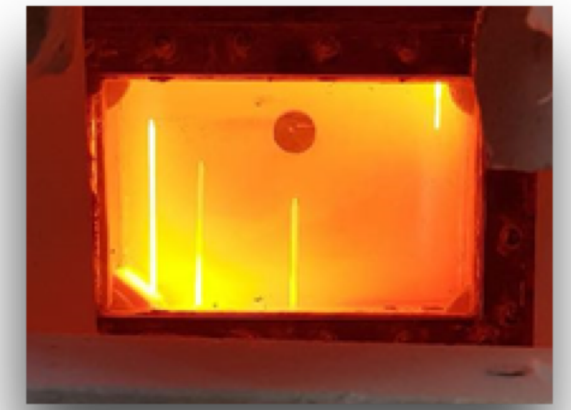
DECARBONIZATION AND ENERGY TRANSITION

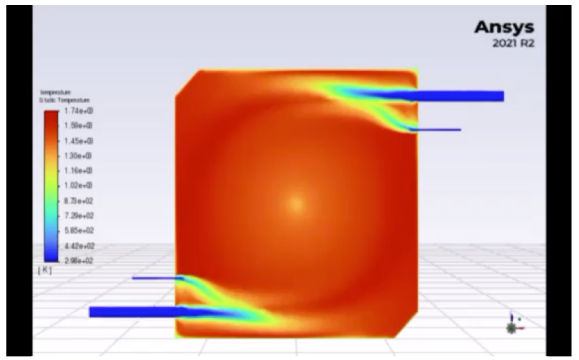


"Capture Ready" Combustion: Oxycombustion and CLC (chemical Looping Combustion)



O. Senneca et al.





MILD combustion

M. de Joannon et al.

Combustion technologies under microgravity conditiond

R. Calabria, P. Massoli et al.

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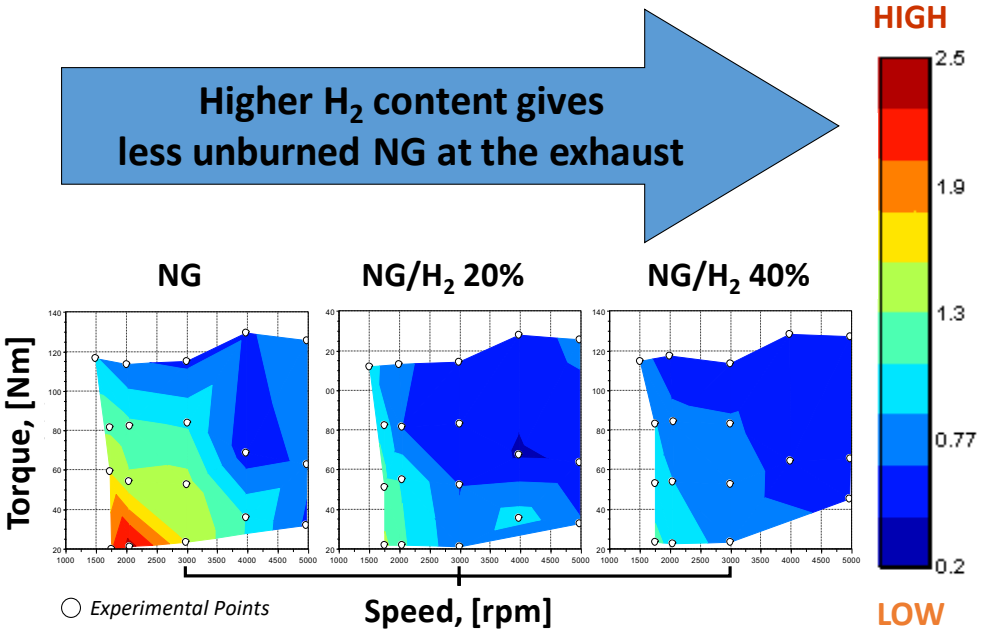
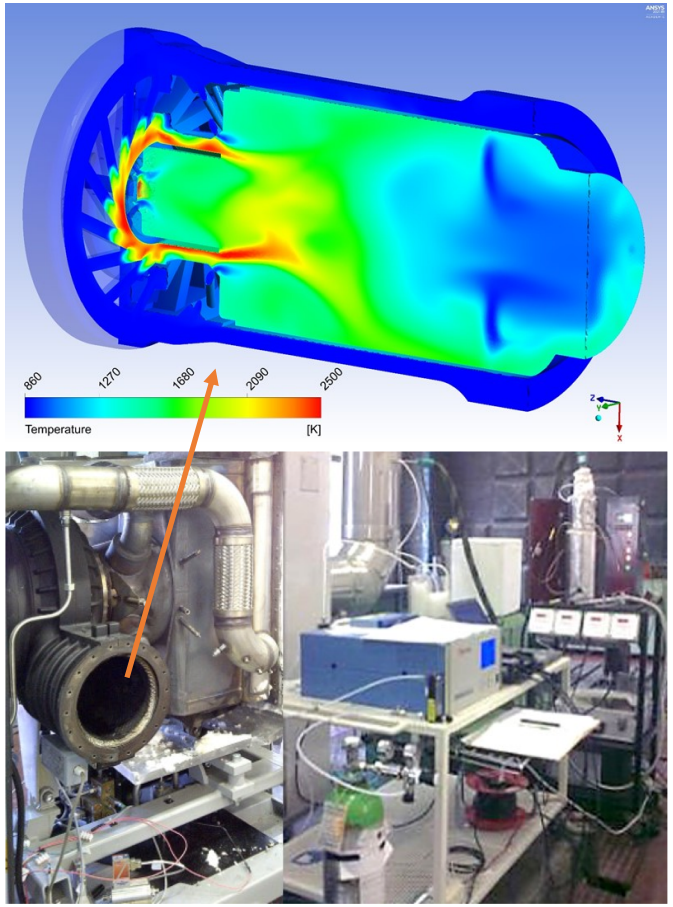


Alternative Engines fueled by methane-hydrogen mixture

S. Iannaccone, L. de Simio



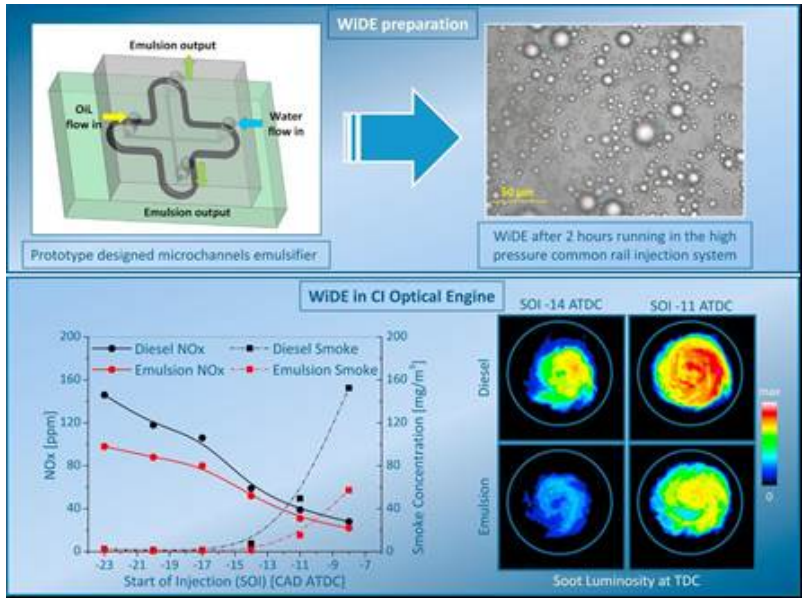
100 kWe Gas Micro-Turbines: power strategies for methane-hydrogen or biogas mixtures feeding

F. Chiariello, F. Reale et al.

Furnace for 1 MW turbo gas burners

C. Allouis et al.

DECARBONIZATION AND ENERGY TRANSITION



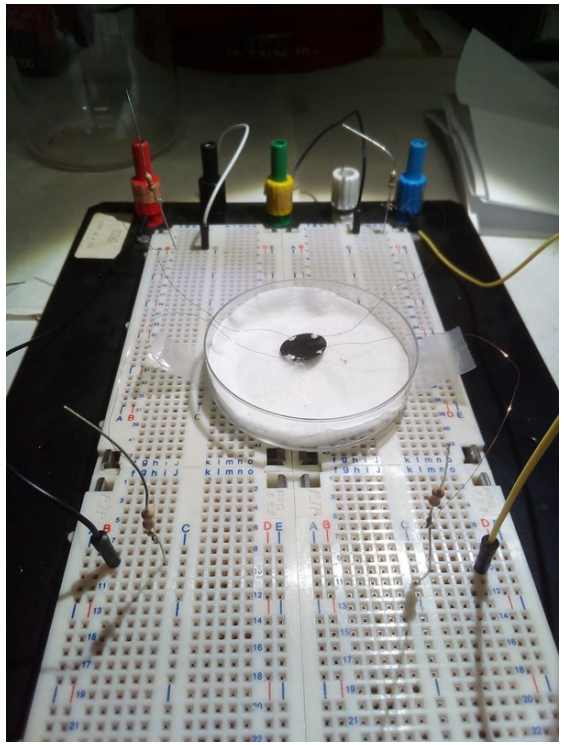
Micro emulsioni in motori ottici

C. Tornatore, L. Marchitto et al.

Studies of the formation of air/fuel mixtures and of the combustion process occuring in internal combustion engines fueled by renewable fuels injected by using dual-fuel and emulsion mode techniques.

Monitoring, control and study of energy efficiency and environmental impact of combustion/pyrolysis systems for energy production which use traditional and alternative fuels

B. Apicella et al.



Materials for O_2, CO_2, VOC detection

M. Alfé et al.