Roadmap to CO_2 capture, storage and valorization @CSFT

The worldwide growing environmental concerns correlated with CO_2 emissions, especially in energy-intensive industrial activities, have pushed the academic and industrial research towards innovative and efficient technologies aimed at: (i) mitigating climate change by ensuring reduction of the anthropogenic CO_2 footprint and (ii) improving the efficiency in the usage of renewable feedstocks, within a circular economy perspective.

To this aim, capture and separation of CO_2 from industrial combustion gases is envisaged as the first step, followed by its valorization through catalytic routes, to obtain value-added products. As an additional possibility, CO_2 temporary storage after its sequestration can be considered, to use it on demand and valorized at a later time.

In this framework, the most recent results obtained at the Center for Sustainable Future Technologies of Istituto Italiano di Tecnologia, related to the carbon capture, storage and use, are presented and discussed.