**DEPARTMENT OF MOLECULAR SCIENCE AND NANOSYSTEMS**

**Seminars of the PhD Programme in Chemistry**

Università Ca'Foscari Venezia

# *Substrate-Controlled Activation of $CO_2$ towards Molecular Complexity*


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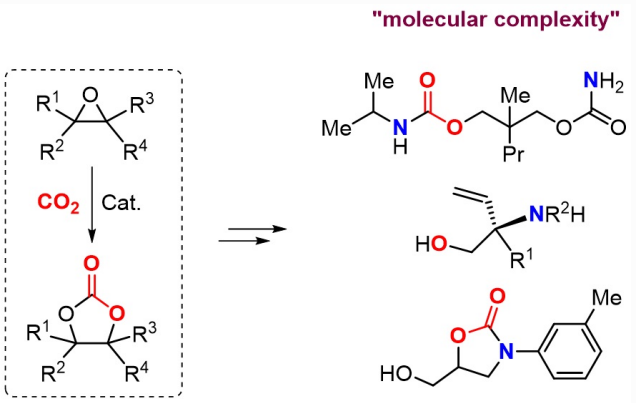
**at 14:00**
**Conference Room, via Torino 155, Venezia Mestre**


### Abstract

The conversion of carbon dioxide into value-added chemicals remains a challenge for synthetic chemists. Considerable progress has been noted over the years demonstrating that catalysis is the key enabling technology to upgrade this renewable and cheap carbon feedstock. One of the major areas in $CO_2$ catalysis employs high-energy reactants such as epoxides to overcome the thermodynamic barrier associated with carbon dioxide conversion, whereas suitable catalysts are required towards sustainable transformations.




The catalytic [3+2] cycloaddition reaction between $CO_2$ and epoxides has been studied extensively over the years, but only since recently has advanced to such a level that the products of this coupling reaction (cyclic carbonates) have become synthetically useful targets and intermediates. This lecture will give a retro-perspective view on the field, and demonstrate the importance of these heterocyclic structures in fine-chemical, pharmaceutical and polymer applications by increasing the molecular complexity using $CO_2$ as a starting point.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