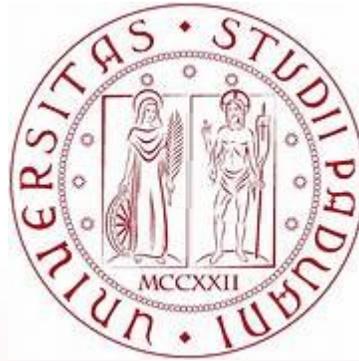


UNIVERSITA' DEGLI
STUDI DI PADOVA



DIPARTIMENTO DI
SCIENZE CHIMICHE

LAUREA IN SCIENZA DEI MATERIALI

**METAL ORGANIC FRAMEWORK
CON GEOMETRIA CONTROLLATA PER LA
RIDUZIONE DELLA CO₂**

RELATORE

Prof. Antonella Glisenti

DOCENTE TUTOR

Dr. Mattia Cattelan

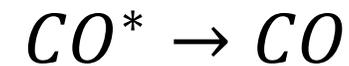
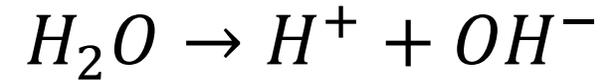
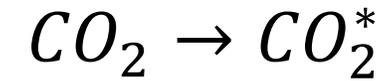
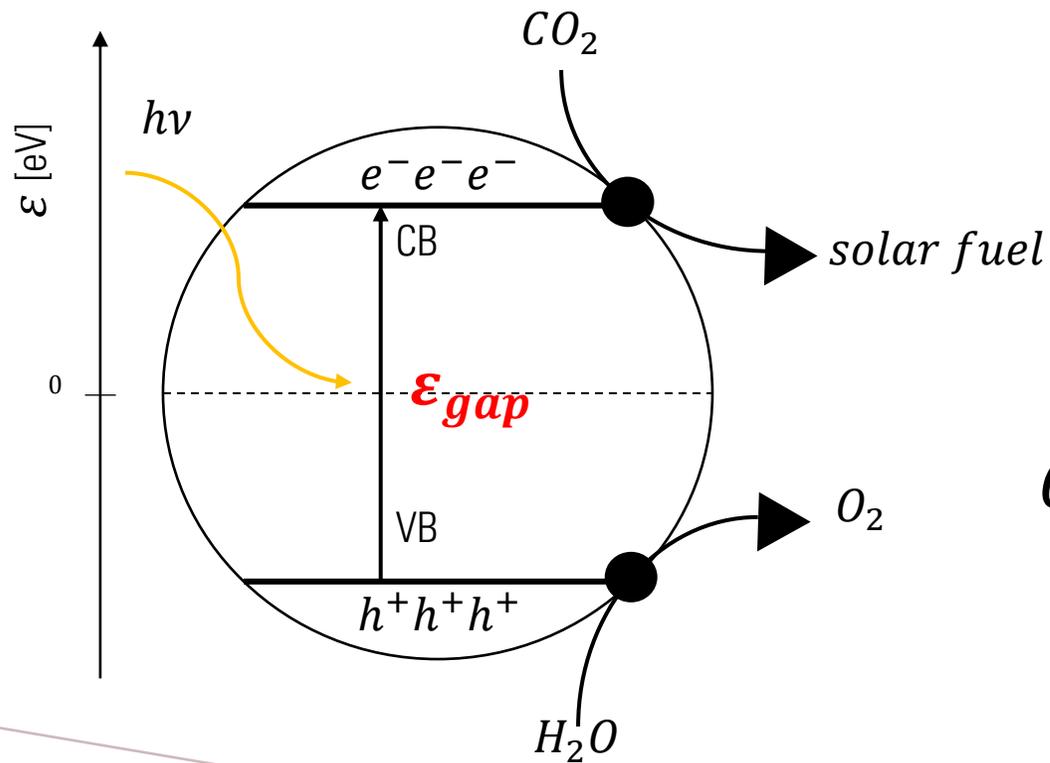
LAUREANDO

Davide Beschi 2009925

ANNO ACCADEMICO
2022/2023



RIDUZIONE ANIDRIDE CARBONICA

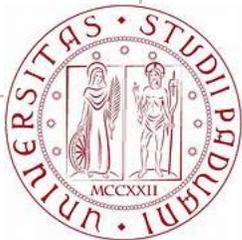




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SCIENZE DEI MATERIALI

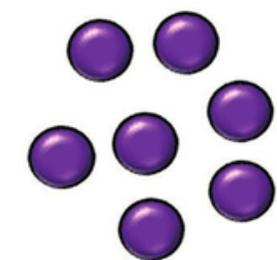
QUALITÀ CHIAVE DEL MATERIALE

Grande capacità di assorbimento
Controllo geometria del materiale
Selettività del prodotto di reazione
Band Gap nel visibile
Capacità di separazione delle cariche

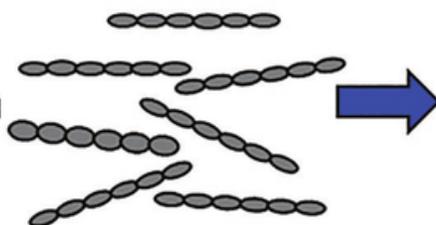


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SCIENZE DEI MATERIALI

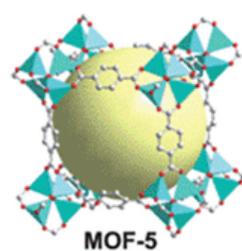
METAL ORGANIC FRAMEWORK



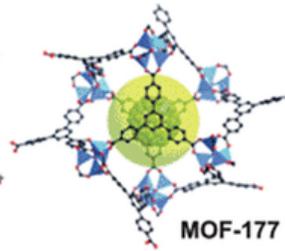
Metal ions
or clusters



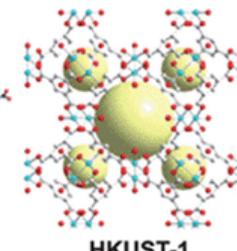
Organic linkers



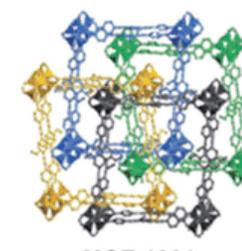
MOF-5



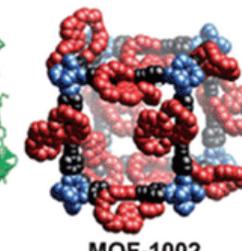
MOF-177



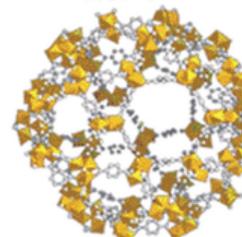
HKUST-1



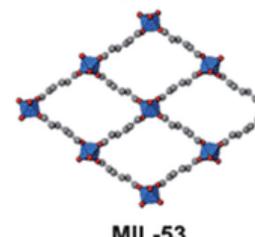
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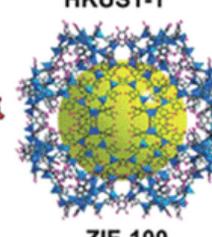
MOF-1002



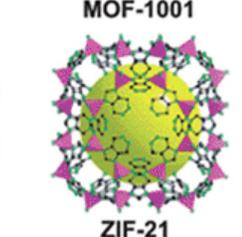
MIL-101



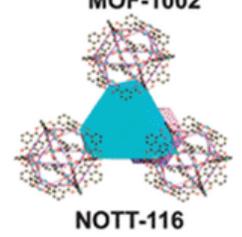
MIL-53



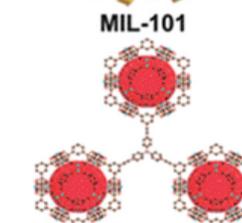
ZIF-100



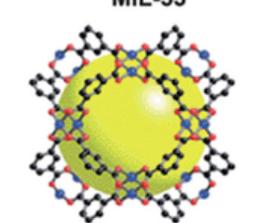
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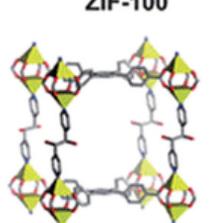
NOTT-116



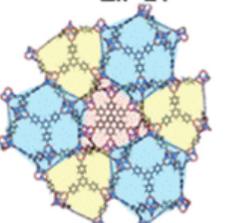
PCN-66



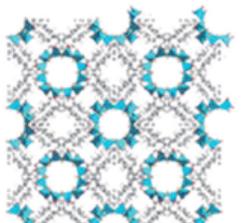
MOP-1



DO-MOF

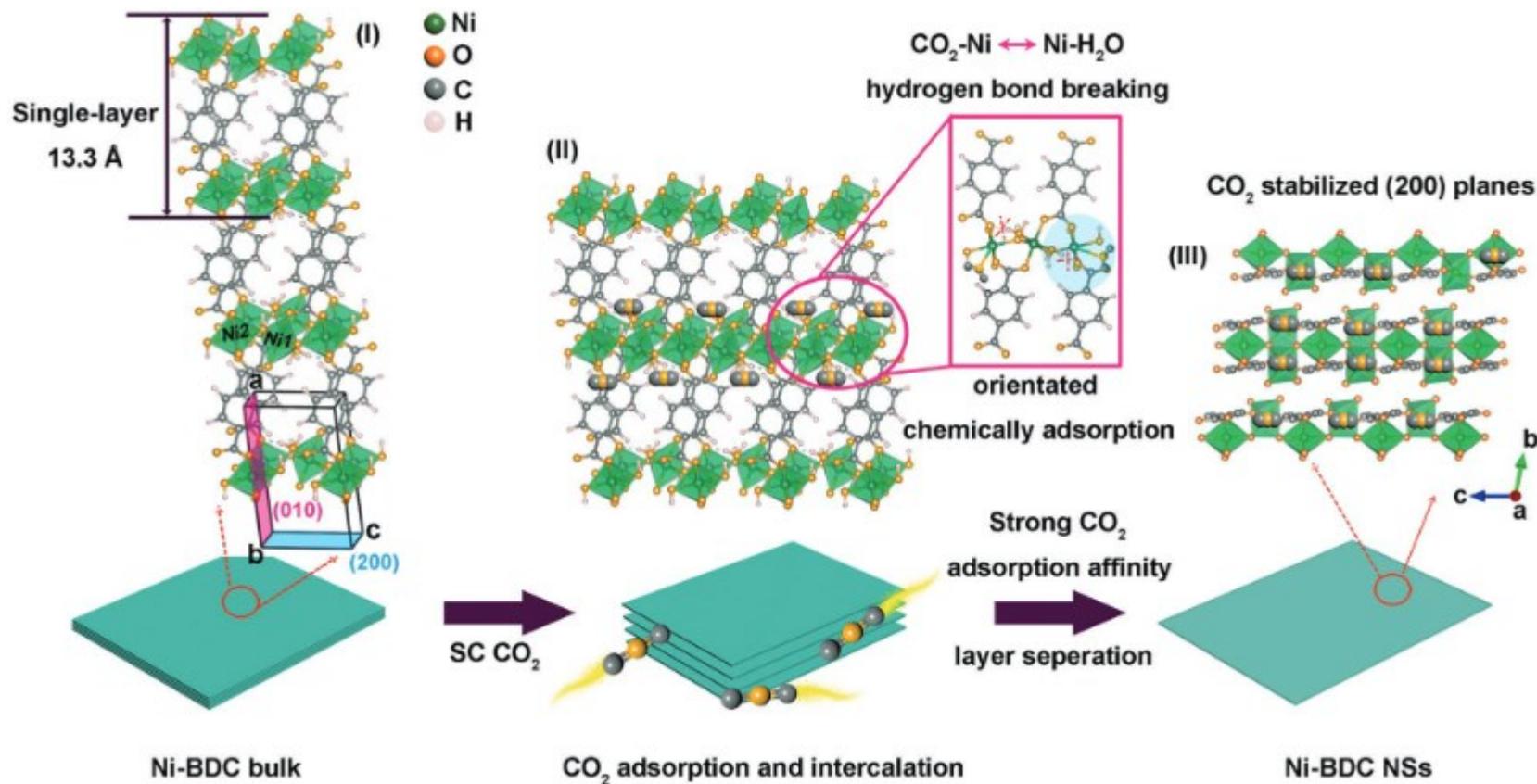


UMCM-2



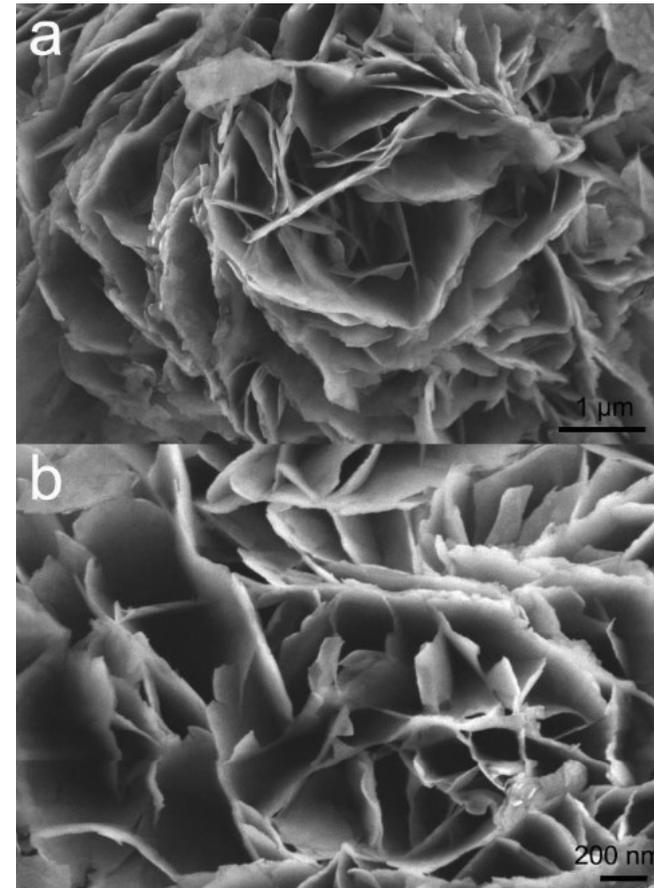
Be₁₂(OH)₁₂(BTB)₄

DIFFERENZE TRA 2D E 3D, Ni-BDC

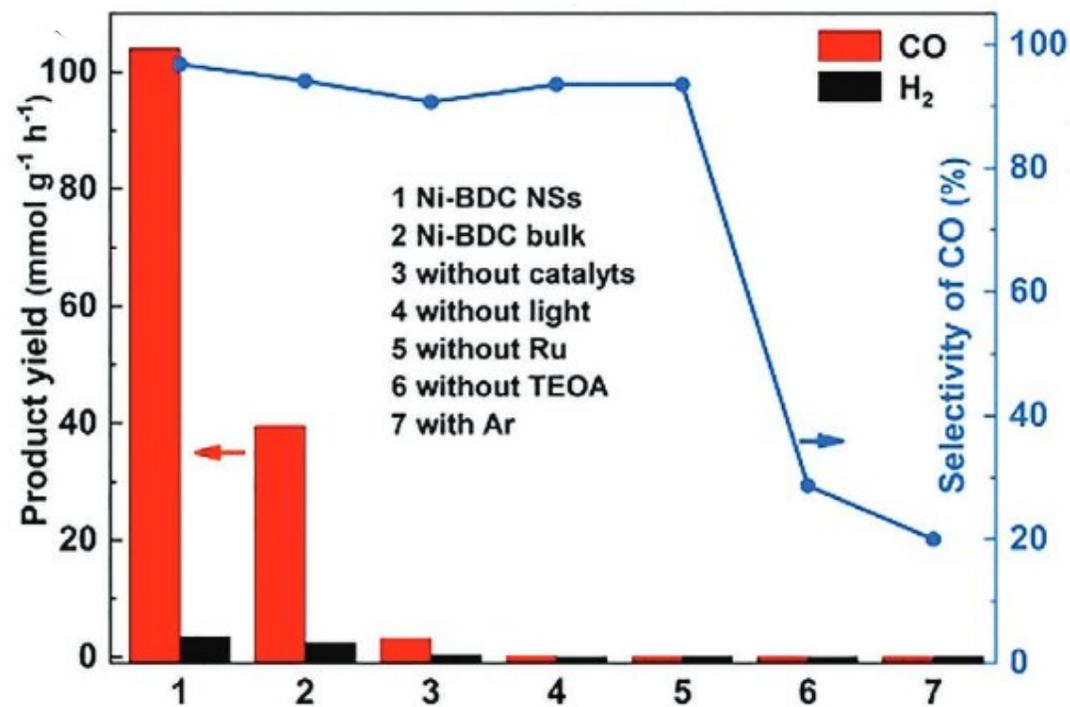
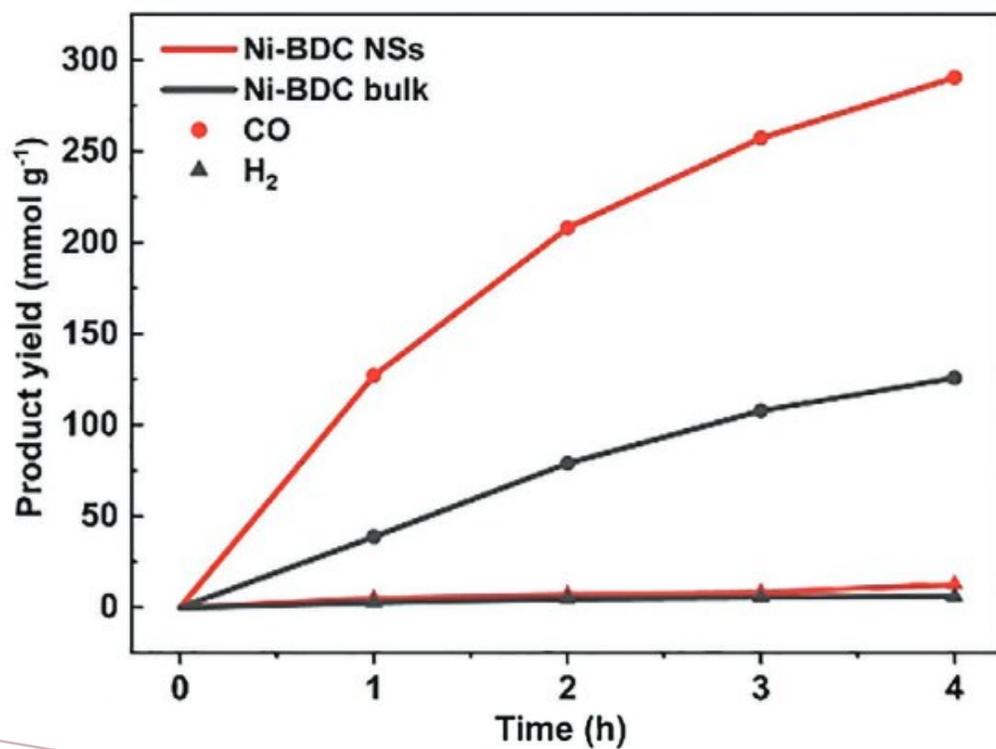


SINTESI MOF Ni-BDC

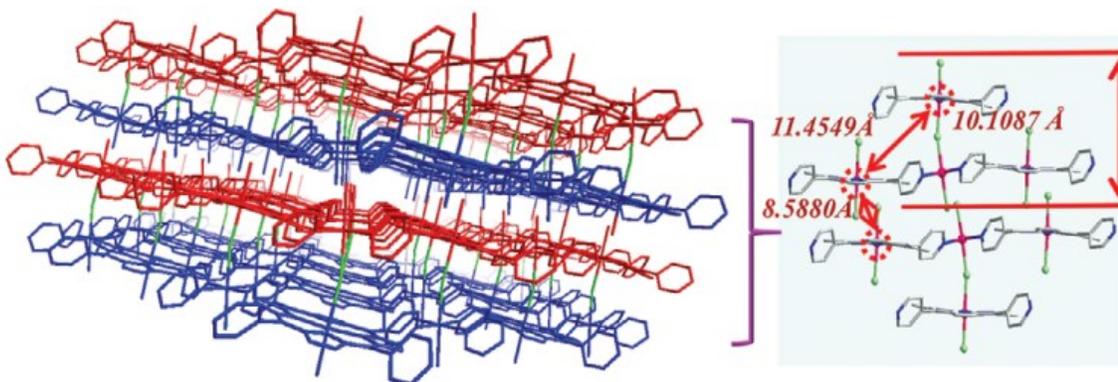
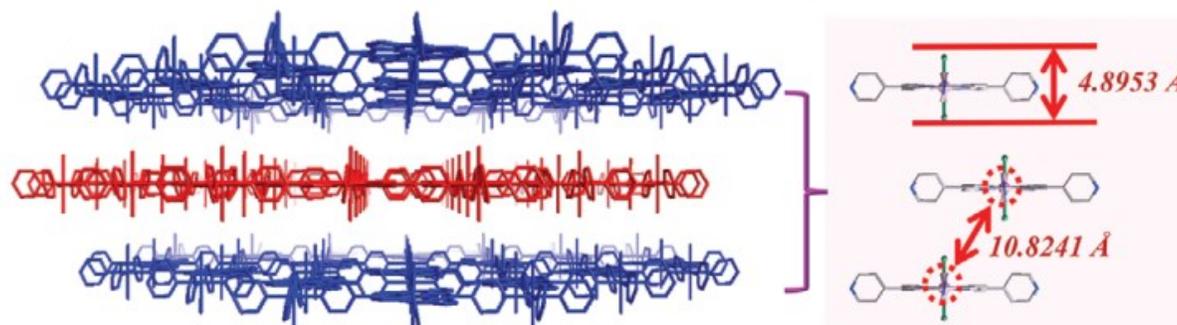
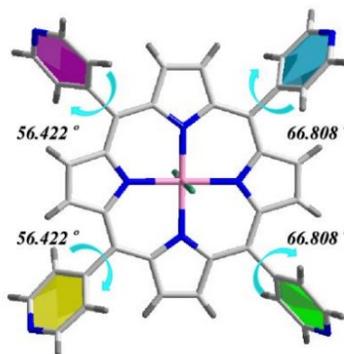
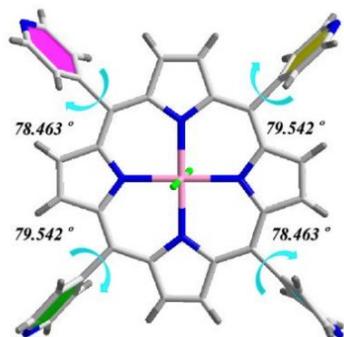
1. Pulizia del substrato
2. Soluzione di reazione
3. Sintesi MOF
4. Essiccazione del prodotto



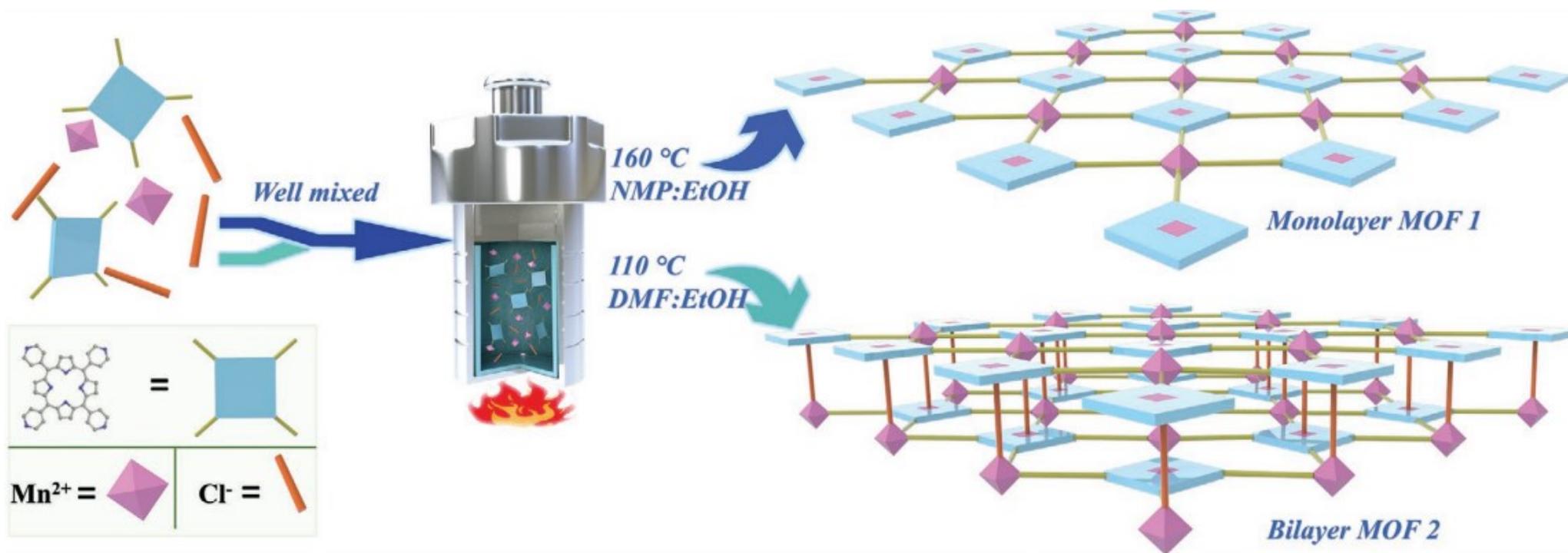
RIDUZIONE CO₂ CON Ni-BDC



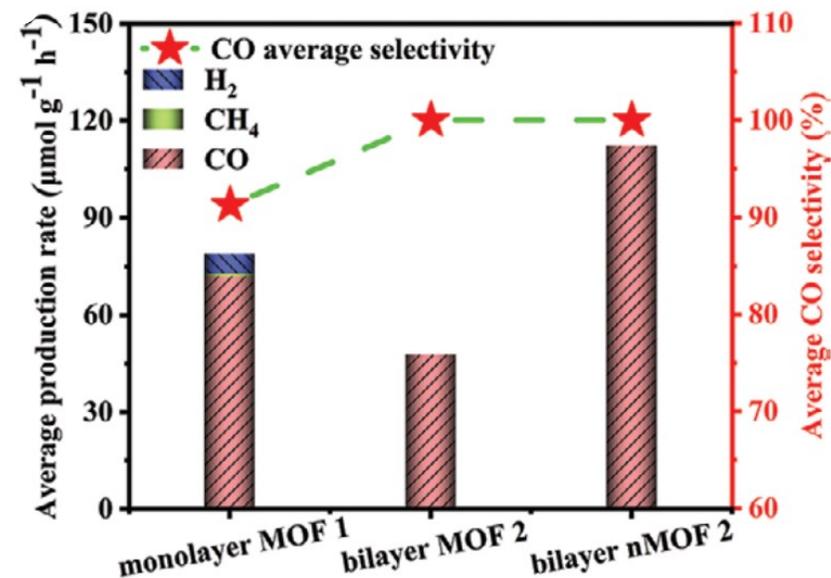
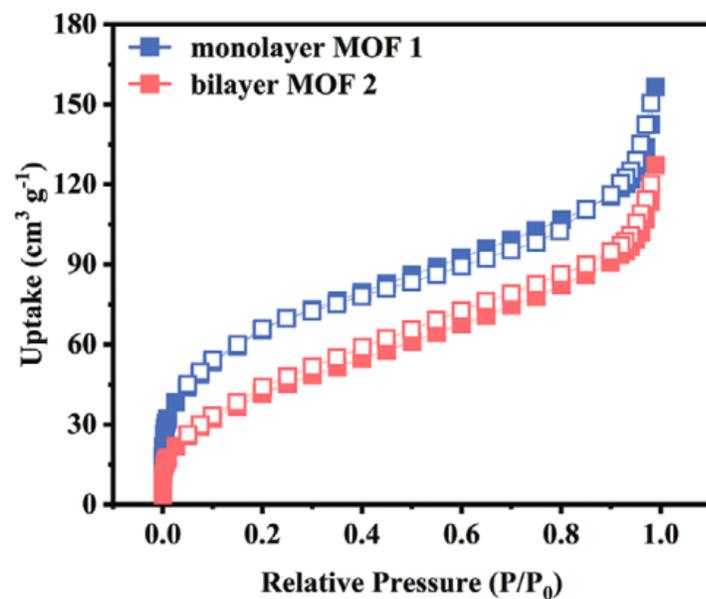
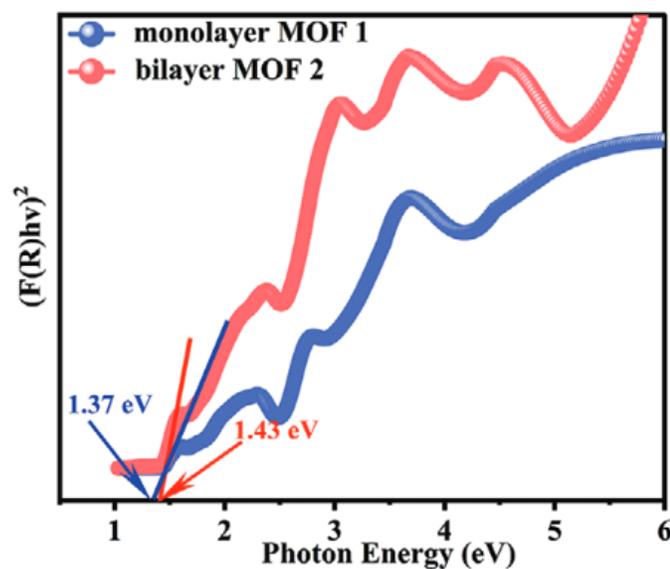
PROGETTAZIONE MOF 2D CON M_n



SINTESI MOF CON Mn



PROPRIETÀ E DIFFERENZE





CONCLUSIONI

Possibilità di produzione su larga scala

Geometria riproducibile e controllabile

Ottima resa di produzione di CO

Selettività del prodotto di reazione del 100%

Attività catalitica controllabile



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SCIENZE DEI MATERIALI

RINGRAZIAMENTI

Ringrazio il Professor Cattelan e il Dottor Di Vizio per l'aiuto nella stesura della presentazione.



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