



AVVISO DI SEMINARIO

Il giorno martedì 26 Maggio 2026, ore 11:30.

nell'Aula Seminari del Dipartimento di Scienze e Tecnologie
Chimiche

Il Prof. David Díaz-Díaz

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Terrà un seminario in occasione di una Collaborazione Erasmus dal titolo

“Soft Confinement in Functional Materials: Viscoelastic and Porous Architectures as Enabling Platforms”

Proponente: Prof. Fabio Domenici

Soft Confinement in Functional Materials: Viscoelastic and Porous Architectures as Enabling Platforms

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Abstract

Soft confinement in functional materials has emerged as an effective strategy to control chemical processes by structuring the local environment rather than relying on intrinsically reactive matrices. The purpose of this contribution is to examine how viscoelastic and porous architectures can operate as enabling platforms for some (photo)chemical processes, with particular emphasis on their role as reaction media. Our studies show that the materials primarily act as host environments that modulate reaction conditions rather than as chemically active participants. Extending this approach, porous architectures are explored as functional materials in applications where confinement and interfacial chemistry are decisive, including for instance photocatalytic hydrogen generation, biomedical platforms, and selective gas capture. In these systems, experimental results reveal that porosity, chemical functionality, and material architecture govern accessibility, selectivity, and overall performance. The major conclusion of this work is that soft confinement should be understood as an enabling design principle that unifies seemingly disparate applications by emphasizing environmental control, structural organization, and functional versatility, offering a framework for the development of new materials for energy, sustainability, and chemical technologies.