HOSTING GROUPS FOR INTERNATIONAL MOBILITY

Biological Inorganic Chemistry

The **Biological Inorganic Chemistry Group** at STeBiCeF-UniPa focuses on the design and synthesis of transition metal complexes for applications in bioinorganic chemistry and in catalysis, also in collaboration with European research groups. Our research combines interdisciplinary experimental and computational approaches to investigate the interaction of these compounds with biological macromolecules, particularly duplex and G-quadruplex DNA. A key area of interest is understanding how metal complexes can modulate nucleic acid structures, with implications for anticancer and antimicrobial strategies. Additionally, we explore the catalytic mechanisms of metalloproteins, gaining insights into their function at the molecular level. A new recent focus addresses the utilization of metal catalysts for CO_2 capture and conversion into added-value products, investigating the structure-property relationships and the involved reaction mechanisms.

Team members:

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Selected publications:

- *DNA Binding Activity of Functionalized Schiff Base Metal Complexes,* ***Eur. J. Inorg. Chem.*** *28, e202400705 (2025) (http://doi.org/10.1002/ejic.202400705)*
- *Metal centers and aromatic moieties in Schiff base complexes: impact on G-quadruplex stabilization and oncogene downregulation,* ***Inorg. Chem. Front.*** *11, 5725-5740 (2024) (http://doi.org/10.1039/d4qi01394h)*
- *Novel half Salphen cobalt(III) complexes: synthesis, DNA binding and anticancer studies,* ***Dalton Trans*** *53, 6311-63224 (2024) (http://doi.org/10.1039/d4dt00092g)*
- *How the Metal Ion Affects the ^{1}H NMR Chemical Shift Values of Schiff Base Metal Complexes: Rationalization by DFT Calculations,* ***J. Phys. Chem. A*** *127, 9283-9290 (2023) (https://doi.org/10.1021/acs.jpca.3c05653)*
- *Resolving a guanine-quadruplex structure in the SARS-CoV-2 genome through circular dichroism and multiscale molecular modeling,* ***Chem. Sci.*** *14, 11332-11339 (2023) (https://doi.org/10.1039/d3sc04004f)*