

# The Chemist's Interactions

Seminars @ the Chemistry Department

Friday, 19<sup>th</sup> November 2021



**Valentina Cauda**  
Politecnico di Torino, Italy

ROOM  
G11  
h 14.30

## Stimuli-responsive hybrid nanoconstructs for efficient theranostic applications in nanomedicine

The role of nanomedicine in the fight of cancer is increasing steadily, as cancer itself is still the second major death cause worldwide, even superior to Covid-19 related deaths. Therefore, many investigations related to the role of nanomaterials in biological fluids, their drug adsorption capability towards development of smart drug delivery systems, as well as their ability to respond to intrinsic cues or external stimulations for exploiting therapeutic or imaging purposes are hot topics.

In this lecture, the role of nanomaterials, especially metal oxide nanoparticles and nanocrystals, in terms of biological identity and strategies to improve their biocompatible and even biomimetic properties will be thoroughly discussed. Surface modifications as well as doping with transition metals on metal oxide nanomaterials will be shown to exploit intriguing properties, able to respond to stimuli activations, such as magnetic fields, light or ultrasound irradiations. These remote activation enables their use as nano-sized contrast agents for high-resolution and site-selective imaging or to develop a toxic action against selected cancer cell in terms of anticancer therapy.

Finally, strategies to impart a selectivity towards cancer cells is proposed, as site-selective targeting with functional moieties and proteins.



zoom

The event will be streamed on zoom.us  
for external participants!

For registrations: [valentina.colombo@unimi.it](mailto:valentina.colombo@unimi.it)



UNIVERSITÀ  
DEGLI STUDI  
DI MILANO