Dipartimento di Scienze Chimiche - Mercoledì 18 novembre 2020, ore 15.00 - 16.30

https://unipd.zoom.us/j/81924142858

Università degli Studi di Padova - UNIPD
Dipartimento di Scienze Chimiche - DiSC

Enzo Menna

Chemically modified carbon nanostructures for functional hybrid and composite materials

The combination of carbon nanostructures (CNSs) with specific polymer or inorganic matrices enables the engineering of functional materials with unprecedented properties.
We have studied functionalization strategies, optimized to contrast CNS aggregation, while limiting the loss of electronic properties, and to tune the interactions with π-conjugated polymers, to obtain functional materials for applications in energy related fields. Poly(3-hexylthiophene) nanocomposites, based on functionalized carbon nanotubes (CNTs) and reduced graphene oxide (RGO), were used as hole transporting materials in perovskite solar cells, while in the field of dye-sensitized solar cells (DSSC), grafting of photoactive molecules on RGO has led to novel photosensitizing agents.
On the side of biomedical applications, we have proposed a nanocomposite material that combines the conductive and topographical features of functionalized CNSs with the biocompatible and mechanical properties of a polylactide matrix (PLLA).

Il Direttore DiSC
Michele Maggini

Consiglio Nazionale delle Ricerche - CNR
Istituto di Chimica della materia Condensata e di Tecnologie per l'Energia - ICMATE

Filippo Agresti

Nanofluids: colloidal systems for energy saving, conversion and storage applications

Nanofluid is a term introduced more than a decade ago to refer to colloidal systems made up of nanoparticles disperses into base liquids, with the scope to improve some of fluid properties. The first application of these systems was thermal conductivity enhancement of heat transfer fluids. Despite the first sensational results, sometimes not confirmed by more detailed studies, the research on this field has expanded to new systems and new applications. This seminar will be devoted to the presentation of various colloidal systems studied in recent years for alternative applications such as direct absorption of solar radiation through black colloids, heat transfer and storage through phase-change materials (PCM) nano-emulsions, wear and friction reduction by nano-lubricants to cite some.

Il Direttore DSCTM
Lidia Armelao

Il Direttore ICMATE
Vincenzo Buscaglia