



Venerdì 14 aprile 2023 alle ore 15:00 presso l'aula G

il Dr. Francesco De Bon

CEMMPRE, Department of Chemical Engineering University of Coimbra, Portugal

terrà il seminario dal titolo:

Atom Transfer Radical Polymerization in Large Scale:

Challenges and Opportunities

Atom Transfer Radical Polymerization (ATRP) is likely the most powerful, versatile, and scalable method for controlling (macro)molecular radical reactivity. ATRP is an industrially important technique, used by many to produce specialty polymer products. We recently introduced some innovative ATRP scale-up procedures in different conditions and of different monomers. As the catalyst drives the polymerization to high conversions, without compromising M_w/M_n even beyond the 10 L scale, a molecular Oxygen Reduction Reaction (ORR) cycle is nested into the ATRP equilibria to make the reaction tolerant to oxygen (and sometimes inhibitors). ORR byproducts are then abated by a ROS scavenger. These major advances let us scale-up: 1) electrochemically mediated ATRP in homogeneous and dispersion conditions, scaled using the reactor walls as electrodes and electricity from renewable sources; 2) photoATRP in homogeneous conditions. By combining externally controlled ATRP and oxygen/inhibitor tolerant conditions, ATRP can become crucial a polymerization strategy in the XXI century transition toward a circular plastic economy.

La presenza della S. V. sarà molto gradita

Marco Fantin

Il Direttore del Dipartimento Michele Maggini