POLYMER AND HYBRID PHOTONICS CRYSTALS: SUGGESTIONS FOR A SUSTAINABLE PHOTONICS

D. Comoretto
Dipartimento di Chimica e Chimica Industriale, Università di Genova, via Dodecaneso 31, 16146 Genova (Italy)
e-mail: davide.comoretto@unige.it

Year by year, the importance of organic and hybrid nanostructures in photonics is increasing. Polymers represent an interesting alternative to more traditional metal oxides, being easily processable and allowing for light, free-standing and flexible structures. In sensing, they could allow for label-free sensors for food degradation, precious to reduce environmental impactful food waste. In the thermal shielding field, they would allow for thin, transparent films able to reduce heating by sunlight and to improve the sustainability of buildings and to keep the quality of foods/beverages. Moreover, in fluorescence control and lasing, they are fundamental towards all-organic photonics and polymer quantum electrodynamics providing fundamental hints to quantum technologies. Finally, hybrid materials are of great interest in these regards as they combine the processability of polymers with the superior refractive index properties of inorganics.