



**ESPERANTO** (Enhancing the Sustainability of PhotopolymERS ANd phoToinduced prOcesses) is a Doctoral Network project funded by the European Union under the programme Horizon Europe Marie Skłodowska-Curie Actions. The project aims at (i) improving the sustainability of photopolymers (ii) boosting the use of photopolymerisation processes in the industrial sector to replace less sustainable processes and (iii) training a new generation of researchers with advanced scientific skills and sustainability consciousness.

Gathering 8 universities and 8 non-academic partners, **ESPERANTO** will reach its objectives through 13 individual PhD projects addressing sustainable innovation, within an international and intersectoral research network of academic institutions and enterprises in the field of photopolymers and high-tech.

**One Marie Skłodowska Curie fellowship (PhD position n.2) will be available at the Institute of Chemistry of Polymeric Materials at the Montan University of Leoben (Austria)**

The Montan University (Leoben, Austria) stands for excellence in research and science in the areas of advanced resources, smart materials and sustainable processing. The Institute of Chemistry of Polymeric Materials provides broad knowledge and expertise in the fields of macromolecular chemistry, physical chemistry of polymeric materials, and molecular characterization of polymers. Special research topics include photochemistry of polymers, 3D printing of biocompatible structures, surface and interfacial chemistry, technology of functional (nano)composites. Moreover, the chemistry of functional UV-curable inks and resins, which are non-irritant and provide eco- and biocompatibility, is investigated. In this context, alternative radical based curing reactions are explored on a fundamental level to substitute (meth)acrylate monomers/oligomers in conventional resin formulations; the development and investigation of highly efficient photoinitiators providing low migration in the post-cured materials is another primary interest of the group.

**Marie Skłodowska Curie fellowship (PhD position n.2)**

**Project title: Synthesis of surface immobilised photoinitiators**

**Project description:** The candidate to this position will focus on the synthesis of non-migrating photoinitiators that can be immobilized onto surfaces, mainly of inorganic (nano)particles, by using organosilane linkers. Attachment of nitrene and carbene generators and similar functionalities, that can be triggered by light, onto surfaces and particles will be performed in the academic secondment. Besides the synthetic activity, characterization of the photoinitiators will be performed and the efficiency of the new molecules will be compared to free (i.e., non-coupled) initiators. Particles with immobilised photoinitiators will be used in composites: tuning of the mechanical properties of photocured composites will be explored by separating the UV wavelengths which are required to cure the matrix resin and to trigger the photoreaction at the surface/interface.

The overall goal of the project is the identification of at least one photoinitiator that is less hazardous than the selected benchmark and has comparable performances.

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**This PhD project refers to ESPERANTO Fellowship n.2.**

**Application should be sent to [esperanto@polito.it](mailto:esperanto@polito.it), following the guidelines reported in this website.**