

Renewable Materials and Nanotechnology (RMNT) KULeuven



Linking polymer chemistry and fundamental polymer physics with polymer processing and material properties

- Structure-processing-property relationships
- Crystallization and crystal phase effects
- Compatibility between polymers
- Nanoreinforcements and effects of additives
- Interfacial effects between polymer surfaces or on substrates (e.g. polymer diffusion across surfaces)
- Surface effects (adhesion, printability)

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Investments to support materials characterization:

- X-ray Photoelectron Spectrometer for dedicated polymer surface characterization
- Small and Wide-Angle X-ray Scattering for bulk polymer texture and crystallinity characterization
- Isothermal titration calorimetry for polymer and additive compatibility

In addition to existing characterization techniques (heated GPC, elemental analysis, optical microscopes, thermogravimetric analysis, etc.)

<https://www.kuleuven-kulak.be/RMNT>

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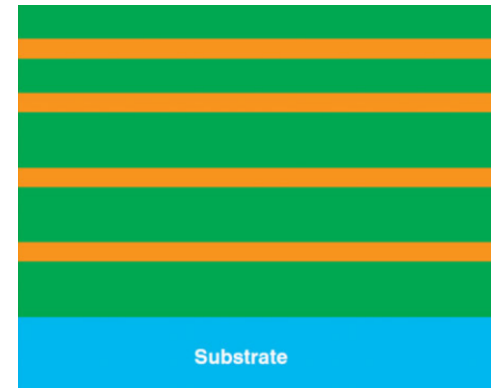
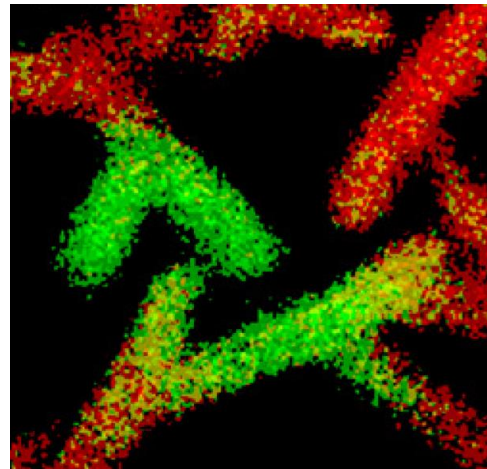
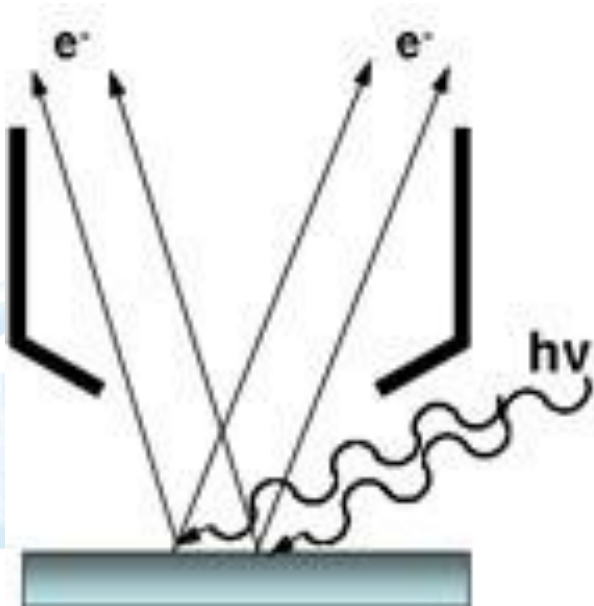
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X-ray Photoelectron Spectrometer

Surface electrons give chemical information about the surface

Chemical mapping becomes possible

Depth profiling or surface cleaning



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Small and Wide Angle X-ray Scattering Value for 3D printing

Investigation of 2 different PE fibers



Europese Unie
Europees Fonds voor Regionale Ontwikkeling



Mapping of local
alignment within printed
part



Images courtesy of Xenocs

