

Light-assisted synthesis of a highly reflective metal coating

- Photo-assembling of metal nanoparticles (MNPs) in a polymer matrix
- An innovative fast process for the creation of a multifunctional coating with mirror effect



KEYWORDS

- Metallic coating
- Silver metal
- Highly reflective and conductive
- Photo-assembling (UV)

PATENTS

- EP15305444
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INVENTOR

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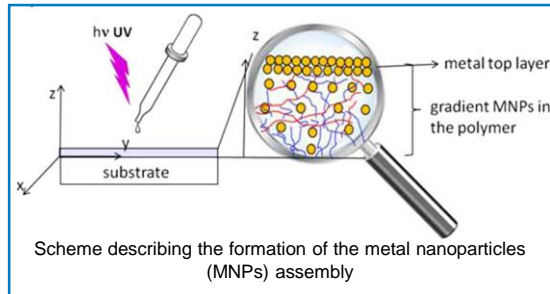


TECHNO-STATUS

- **Under Development**
420 000 euros of ongoing Conectus investment for proof of concept
- planned project end date:
January 2019
- **Ready to market :**
open for licensing

TECHNOLOGY

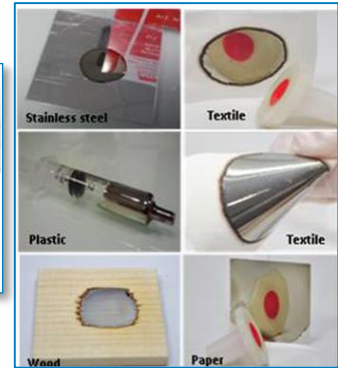
- An efficient, *in situ*, one-step and all-photoinduced approach to produce metal mirrors and conductive coatings at room temperature and under air
- An innovative process of photo-assembling of MNPs in a polymer matrix resulting in a highly reflective metal thin film



Zaier M. et al. (2017), Scientific Reports, 7: 12410; DOI: 10.1038/s41598-017-12617-8

APPLICATIONS

- Metallic coating and inks (reflective, aesthetic, conductive, anti-microbial)
- Metallic pigments
- Metallization
- Conductive inks



INNOVATION ADVANTAGES

- Multifunctional coating
- Fast process **at room temperature and without any solvents**
- **Reduced cost**, very low content in metal
- **One-step approach**
- **In situ synthesis** of nanoparticles in a solid state process, **NO** nanoparticles manipulation
- **Controlled synthesis of a coating with mirror effect**
- **Self-healing property** of the material
- Compatible with a **variety of substrates** (textile, paper, glass, wood, plastic and stainless steel);
- **Conservation of the substrate flexibility**
- **Suitable for spray and printing technologies**, fully tunable viscosity
- Broad range of **available metals**: Ag, Au, Pd, Pt...

DEVELOPMENT STATUS

- Proof of concept of the technology has been achieved
- Demonstrated for printing ink application
- Scalability and rapidity of the process demonstrated
- **Technology ready to be transferred to industry**