

PRESS RELEASE

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LIST AND MPG EXTEND THEIR COLLABORATION

On 12 March, the Luxembourg Institute of Science and Technology (LIST) and the Molecular Plasma Group (MPG) signed a Memorandum of Understanding to pursue their collaboration in the field of atmospheric plasma technology.

On 12 March, MPG organised an Open House event at its facility in Foetz and welcomed over XX people. During the event, the signing of a Memorandum of Understanding between LIST and MPG was celebrated. MPG, the Molecular Plasma Group, is the result of the combination of two spin-offs from two public research institutes: LIST and VITO (Belgium). The company, created in 2016, delivers a unique surface functionalization technology, which allows the chemical characteristics of any surface to be permanently changed, thus creating a wide range of surface functionalities for various industries.

Over the next three years, MPG and LIST want to foster their collaboration both in the technologies relating to Atmospheric Pressure Plasma Assisted Chemical Vapour Deposition (AP-PACVD) and in its application for industrial applications in general, as well as for biomedical applications specifically. LIST will also support MPG in characterization and testing.

This important milestone was made possible in part by the successful collaboration between diverse members of Luxembourg's research ecosystem, which includes Luxinnovation and the Fonds National de la Recherche.

The Open House event was also the occasion for LIST and MPG to officially launch two joint projects: Resuppli and Plasperox.

More robust superhydrophobic coatings

Building on the interest in MPG's superhydrophobic coating observed in various markets, the first project (Resuppli) aims to further improve the robustness of superhydrophobic coating solutions first developed by LIST to enable an even larger field of applications. The idea is to develop a second generation of plasma functional thin films with higher durability performances on a wider range of substrates. At the end of the project, coating solutions and deposition methods will be transferred to MPG.

Photocatalytic mechanisms to generate clean solar-based fuels

Photocatalytic processes, including photochemical water splitting, are among the most promising alternatives for environmental remediation and the generation of clean fuels from renewable and highly abundant sources, such as water and solar energy. The second project (Plasperox) will study the use of plasma to deposit photocatalytic thin films. This could provide an efficient and economical technological breakthrough for sustainable solar fuel generation from water splitting.

Plasma research at LIST

LIST researchers use plasma technology and its deposition on an industrial scale to treat materials on 3D shapes. The aim is to give the surface of this material new properties (for

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example, make it corrosion-resistant, antibacterial, self-cleaning, etc.). Compared with other techniques, plasma presents several advantages:

- It allows the deposition of molecules on large areas and on 3D shapes, with high deposition rates and a high throughput of materials that can be treated;
- It deposits smooth and uniform films on the whole surface;
- The deposition process is reliable and stable, which allows continuous production (24/24hr);
- It consumes little gas and utilizes gases that are cheap and/or can be easily recycled/reused.

LIST has a leading international position in this R&D field and MPG is now a full service provider of plasma coating solutions. As Thomas Kallstenius said, "XXXXXXX".

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