

PRESS RELEASE

ENGLISH

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Contact Olivier Marquis

Phone (+ 352) 275 888 319

E-mail olivier.marquis@list.lu

MASK DECONTAMINATION: LIST AND MPG JOIN FORCES AGAINST COVID 19

The Luxembourg Institute of Science and Technology (LIST) and Molecular Plasma Group (MPG) are teaming up to find a plasma-based method to decontaminate used masks and personal protective equipment in order to reuse them. The project also aims to create masks with antimicrobial/anti-viral coatings.

In the context of the COVID19 pandemic, many European countries are suffering from a critical lack of personal protective equipment, such as masks and lab coats. In order to address this challenge, several initiatives are being carried out across Europe to identify solutions to reuse the equipment available through decontamination or even sterilization processes. So far, technologies such as chemical sterilization, irradiation, UV exposure, supercritical CO₂ or vacuum plasma have been tested and have been proven efficient against COVID19 contamination. However, they all have major limitations. In particular, they often lead to material degradation due to very aggressive treatments.

Decontaminating or depositing antimicrobial coatings, using atmospheric pressure plasma

The Luxembourgish company MPG markets a unique atmospheric pressure plasma technology, which allows the chemical characteristics of any surface to be permanently modified. This proprietary technology could be a much gentler alternative to the technologies usually used to decontaminate protective masks.

The objective of the project, conducted jointly by LIST and MPG, is to demonstrate the relevance of MPG's technology for:

- decontaminating used FFP masks to make them reusable,
- producing FFP masks and personal protective equipment (PPE) with increased lifespan and performance by grafting antiviral additives.

LIST leverages its expertise in microbiology

LIST's Environmental Research and Innovation department will put its extensive experience in validating antimicrobial treatments at the service of the project. To this end, model viruses that are not pathogenic to humans but representative of viruses such as SARS-CoV-2 will be used. The effectiveness of treatments using MPG's plasma technology will be determined by following the strict experimental frameworks defined by the European standards for the validation of decontamination treatments.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY (LIST)

The Luxembourg Institute of Science and Technology (LIST) is a mission-driven Research and Technology Organization (RTO) that develops advanced technologies and delivers innovative products and services to industry and society. As a major engine of the diversification and growth of Luxembourg's economy through innovation, LIST supports the deployment of a number of solutions to a wide range of sectors, including energy, IT, telecommunications, environment, agriculture, and advanced manufacturing at national and European level. Thanks to its location in an exceptional collaborative environment, namely the Belval Innovation Campus, LIST accelerates time to market by maximizing synergies with different actors, including the university, the national funding agency and industrial clusters.

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A fruitful partnership

Molecular Plasma Group (MPG) is the result of the combination of two spin-offs from two public research institutes: LIST and VITO (Belgium). Created in 2016, MPG regularly collaborates with LIST on joint projects. These multiple partnerships have been made possible thanks to Luxembourg's research ecosystem, which includes Luxinnovation and the National Research Fund (FNR). The first phase of the project, supported by the Ministry of the Economy, is scheduled to last 18 weeks.

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