Seeing is believing: light-sheet videos show efficacy of facemasks against the spread of aerosols

Correctly fitting masks dramatically reduce the release of droplets of aerosols into the air that lead to the spread of SARS-COV-2

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When much of the world went into lock-down to prevent the spread of SARS-COV-2 society was confronted with many questions about how to best prevent the transmission of this contagious virus while carrying out essential activities. Although aspects of the epidemiology of the virus are still under investigation, since March 2020, scientists at ICFO have stressed in reports to government officials the crucial role of masks to prevent the transmission of aerosols carrying droplets of SARS-COV-2 through the air. Public health authorities, headin the advice of scientists, duly issued a mask-mandate as part of the emergency measures t curb infections

ICFO researchers Drs Pablo Loza-Alvarez and Javier Morgado have studied the efficacy o mask-wearing thoroughly using the light-sheet scattering set-up available in the institute' Super-resolution Light Microscopy & Nanoscopy Facility.**Their findings concluded that most masks (specifically surgical masks) work very well for filtering large droplets and even for small ones contained in aerosols, provided that the air flux is directed to the center of the masks and that masks are stretched neither horizontally nor vertically. (see video)**

That being said, no mask provides 100 % filtering and, importantly, masks do not fit perfectly. Air containing aerosols potentially carrying the SARS-COV-2 virus goes in and out through lateral openings between the mask and face.

As the virus will continue to spread, possibly during several years, and new variants will appear , images from videos filmed in ICFO's laboratories lend credence to a call for keeping all precautions to reduce the risk of transmission, including special attention to ma k wearing, and, in some cases, the possibility of wearing a double mask to improve their overa l fit.