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Sommario/riassunto — The pandemic caused by COVID-19 has spread quickly and has caused a great number of deaths worldwide. Due to the progressively increase of infected patients, countries have used preventive measures against this pandemic, such as the use of face masks. The masks have become indispensable to control both public and personal health, by reducing the transmission and spreading rate of the virus. Nevertheless, the traditional masks hide our facial expressions and emotions, and also communication obstacles. In this way, the project, i9MASKS (supported by the Grant-in-Aid "Verao com Ciencia" approved by Fundacao para a Ciencia e Tecnologia (FCT)), aimed to develop transparent facial masks by using polydimethylsiloxane (PDMS) and as a result to reduce not only the transmission and spreading rate of the new coronavirus SARS-CoV-2 but also to minimize the social and environmental impact of the masks. Besides the transparency, the material (PDMS) used to make the masks, has unique and advantageous properties, such as biocompatibility, gas permeability, flexibility and supports autoclaving processes allowing its reuse. To develop these PDMS masks, students and researchers have worked together and acquired multidisciplinary and innovative knowledge at a wide variety of fields, such as computer-aided design, rapid prototyping and 3D printing, microfabrication and microfluidics techniques, numerical simulations, microelectronics and optics, and nanotechnology and nanoparticle synthesis. From this project, several outstanding research works have been performed

including both experimental and numerical investigations, which were later presented at the i9MASKS workshop . This book represents a collection of scientific extended abstract that were presented at the i9Masks workshop in October 2020, at the School of Engineering of Minho University, in Guimaraes, Portugal.