

Nanotech antimicrobial mask blocks 99.9 per cent of germs and particles

Materials scientists from NTU Singapore have developed a reusable “nanotech mask” that can block 99.9 per cent of bacteria, viruses and particulate matter (PM), as well as kill germs just in 45 seconds. Its antimicrobial coating potency can last for at least 6 days, while its filtration efficiency surpasses those of standard N95 masks (95 per cent filtration of PM0.3). It can also be washed and reused over 10 times, making it more sustainable than conventional disposable masks, but just as easy to breathe in.



In mid-May, Singapore tightened its Covid-19 measures as the country was facing an increase in the number of infections, and the population was advised to use more effective face masks to help curb the spread of the coronavirus.

The made-in-NTU nanotech mask is made with two key components: an antimicrobial coating made from copper nanoparticles developed and patented by Professor Lam Yeng Ming, coated on a non-woven fabric mask invented by Associate Professor Liu Zheng, which has a unique static-electricity property that draws and traps all nanoparticles and germs.

The team is now looking to work with local industry partners who are keen to license and scale up the production of their 2-in-1 mask and are currently preparing scientific papers for submission in scientific journals.

NTU scientists have been working on developing solutions in the global fight against COVID-19. These include innovations such as autonomous disinfection robots, COVID-19 rapid test kits and a breathalyser device, a smart mask, antimicrobial coatings, as well as fundamental research on the coronavirus to find new drug targets for treatment and vaccine development.

Healthcare is one of humanity’s grand challenges that NTU seeks to address under the NTU 2025 strategic plan.