

Eawag Seminar Invitation

Smart textiles for the development of innovative facemasks

Speaker **Prof. Dr. René Rossi**, *Head of Laboratory for Biomimetic Membranes and Textiles, Empa, Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, Switzerland*

When **November 5, 16.00 – 17.00**

Where **Online via Zoom, contact seminars@eawag.ch for access details.**

Abstract New fiber technologies allow the development of multicomponent and hybrid fibers with applications in numerous fields like medicine, filtration, or lightweight constructions for automotive or building technologies. In the medtech field, fiber-based sensors or drug-delivery systems can be integrated in the clothing or medical textiles for a better acceptance by the wearer. Similarly, medical protective equipment like facemasks can evolve towards functionalized, smart and active systems. Multi-material polymer fibers as one-dimensional systems are therefore being developed for many applications in and around the body as implantables, wearables or even "disappearables".

At the beginning of the COVID-19 crisis, a group of experts from universities, research institutes, hospitals and defense laboratories was established as part of the Swiss National COVID-19 Science Task Force to define a contingency plan in case of mask shortage in Switzerland and define recommendations for the minimum quality of textile-based community masks for the whole population. One of the important tasks is currently to support Swiss industry in the production of community facemasks. New analytical methods using virus-mimicking structures are currently being set-up to understand the absorption and diffusion kinetics of pathogens through textiles. A large Innosuisse project was launched with around 50 industrial partners to develop innovative masks using these state-of-the-art hybrid fiber technologies like electrospinning for targeted filtration or coatings with virucidal effects. These developments will not only be used in short-term during the pandemic but shall lead to the development of novel re-usable surgical or protective masks.