

## **Prof. Dr. Inge K. Herrmann**

Nanoparticle Systems Engineering Lab, ETH Zurich and Empa

### **Innovating Medical Materials and Technology**

The development of conceptionally new approaches and technologies have been a key driver of progress. Herrmann's research starts with the identification of unmet medical needs and is catalyzed by unfiltered interactions with clinicians. Herrmann develops new, unconventional routes and challenges existing concepts and approaches to harness the full potential of engineering technology and decisively contribute to healthy living. Her work leverages insights into the molecular and structural makeup of biological systems and from the enormous material design space to develop tailored medical materials and devices. This approach is leveraged to develop radically new material solutions to fight antimicrobial resistance and wound healing complications, strategies to prevent calcification of heart valves, and nanoparticle radio-enhancers for augmenting radiotherapy, hence addressing major causes of morbidity and mortality.

Herrmann has pioneered and patented numerous technologies, including a magnetic blood purification approach for the treatment of sepsis (now commercialized by hemotune.ch), bioactive wound glues (now commercialized by anavo.ch), and first-in- field smart surgical sealants with integrated diagnostics for the detection of life- threatening anastomotic leaks (now commercialized by veltist.com). The overall long- term goal of her research is to advance healthcare by creating and translating innovative solutions and by educating the next generation of researchers.

With her research, she has won numerous awards and has been named 'emerging investigator' by the Royal Society of Chemistry and 'rising star' by the American Chemical Society. She has an outstanding record of accomplishment of mentorship and has successfully nominated her doctoral students and postdocs for some of the most prestigious awards.