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FUNCTIONALIZATION OF MAGNETIC NANOPARTICLES FOR EFFICIENT USE IN BIOMEDICAL APPLICATIONS

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Project Summary: Magnetic nanoparticles present powerful tools for catalysis and biomedicine owing to their recoverability and versatile modelling towards targeting compounds. Although these nanoparticles can be very useful, the synthesis of such nanoparticles for efficient targeting with correct characteristics not only towards the desired target but also to the used media is challenging. My PhD research focuses on the functionalization of magnetic nanoparticles in light of biomedical applications. On the one hand, we studied functionalization of magnetic nanoparticles with sulfonated compounds to achieve particles with a high sulfonation degree. On the other hand, we applied biocompatible coatings on magnetic nanoparticles and studied interactions during the coating process and behaviour of the coating itself. Finally, we then used these biocompatible nanoparticles for the capture and later possible release of specific blood components.

CV. Simon obtained his B.Sc. and M.Sc. in Chemistry from ETH Zurich. In 2017, he started his doctoral studies in the Functional Materials Laboratory.