

**P024** pH Dependent protein adsorption on surfaces functionalized by plasma-enhanced chemical vapour deposition  
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The interactions between proteins and functionalized surfaces play a substantial role, e.g. in biomaterials science or biosensor development. However, due to complex dynamic adsorption processes, protein-surface interactions are far from being understood. A pH dependent protein adsorption study as accomplished within the presented work could contribute to a more detailed understanding of the interfacial behaviour during adsorption processes.

The QCM-D technique was used to investigate the adsorption of four proteins (bovine serum albumin, lysozyme, lactoferrin and fibronectin), which differ in size, molecular weight and isoelectric point. The sorbent surfaces were functionalized via plasma enhanced chemical vapour deposition to obtain tightly adherent films, which were in this case a protein resistant poly(ethylene glycol)-like coating and a protein adsorbing poly(acrylic acid) surface. The QCM-D study was complemented by  $\zeta$ -potential measurements to gain information on surface charge density. The results show that simultaneous monitoring of the frequency and dissipation provided unique information on protein adsorption kinetics, the viscoelastic properties and structural changes of the adsorbed protein films. Further, different stages during the adsorption process could be detected. In addition, viscoelastic modelling was performed to calculate the thickness of the adsorbed protein layers.