QCMD as a tool for advancing the understanding and application of nanoporous films

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The AWSensors team specializes in the Quartz Crystal Microbalance with Dissipation (QCMD) technique and focuses on the continuous development of the technology and its uses in different areas of knowledge. As it is, QCMD is a powerful tool for studying processes occurring at or near surfaces, or within thin films.

QCMD is a versatile and sensitive technique that can be applied to a wide range of nanoporous materials, such as zeolites, metal-organic frameworks, polymers, and biomaterials. By using QCMD, one can obtain information about the porosity, permeability, swelling, and hydration of nanoporous materials, as well as their adsorption and desorption kinetics and thermodynamics.

Furthermore, QCMD is a powerful tool for studying the interactions of molecules with mesoporous materials and for developing novel sensors and biosensors based on this technology. By combining QCMD with mesoporous surfaces one can achieve enhanced sensitivity and selectivity for various applications, such as biosensing, catalysis, and gas separation.

A proof of concept for the development of novel sensors and biosensors based on the QCMD technology and its combination with mesoporous sensing layers will be discussed, as well as its possibilities for reaching lower limits of detection based on a strategy of acoustic amplification.