Preparation of QCM-based Sensor system and It's application for SO$_2$, NO$_2$ sensing

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SO$_2$, NO$_2$ is a highly toxic gases and one of the main causes of air pollution. In this work, we made a QCM-based sensor system with high sensitivity and selectivity for SO$_2$ and NO$_2$. QCM was widely researched on application for sensor devices due to its high selectivity, sensitivity, durability and linearity for mass of the target materials. The conductive polymers such as PEDOT, polypyrrole and porous materials such as MWCNT, activated carbon coated on 8MHz AT-cut quartz crystal surface. The coating materials have been dispersed by each solvent. The materials has coated on quartz surface by spin-coating method. The concentration of SO$_2$, NO$_2$ gases is about 60ppm. The coated quartz crystal surfaces are measurement by SEM and AFM. And single gas adsorption were measured with sensor materials.