

Selective gas sensing chemiresistor by using thiolated ligand conjugation on MoS₂ for pattern recognition of volatile organic compounds

김중선, 유해욱, 정희태†

KAIST

Many researchers expect that breath analysis method will facilitate personalized lung cancer detection kits as a commercialized goods. For the sensing platforms of volatile organic compounds (VOCs), chemiresistor is considered as a promising candidates, because of the high sensitivity, reliability, and cost-effectiveness. However, all the fabricated chemiresistors so far have been based on simple nanostructures, high operating temperature and depletion region of metal oxide. Here, we develop a VOC sensor that has high-selective sensitivity depends on the VOC molecules. For that we fabricated MoS₂ chemiresistor and used conjugation of various ligands for the enhancement of gas sensing performances. This will be a promising approach to constructing a versatile sensor array, by conjugating and modifying the ligand materials for selective interaction with targeted gas molecules.