Nitrogen oxides (NOx) are colorless and highly toxic pollutants in the air derived from fossil fuel combustion, power plant, and large scale industrial processes. These gases are one of the main elements causing acid rain, which can cause visibility impairment and deteriorate water quality. NOx gases are also involved in the formation of ground-level ozone, thereby contributing to global warming. Additionally, NOx gases are involved in the nitrosation process in biological tissues, leading to various cancers. Currently, most NOx sensors are electrochemical based and can be easily affected by the vapors, leading to inaccurate and unreliable results.

Researchers at UTA have developed an optical NOx sensor to tackle the problem with vapor sensitivity. The sensor uses calixarene to form a stable complex with NOx gases. This complex is easily detected optically. The sensor also acts as a storage device that keeps the toxic NOx stored safely. Moreover, the Calixarene can be reused after retrieval from the complex. Accurate and reliable results can be generated with this optical NOx sensor without worrying about the influence of the vapors.


The Office of Technology Management (OTM) is responsible for the protection, marketing, and licensing of campus created inventions and intellectual property (patents, copyrights, know-how, etc.). The mission of the Office of Technology Management is to be a gateway between University technologies and industry partners, increasing the quality, quantity, and effectiveness of UT Arlington research in order to properly steward the resources and properties allocated to the faculty, staff, and students of the University by the State of Texas, ultimately making University technologies available for the benefit of humankind.

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