



Project Summary

Food quality status and freshness are main aspects when consumers want to purchase food products and hence, knowing the exact food quality status and its freshness is necessary for consumers. If the food quality status and its freshness is known prior, economic loss as a result of disposing food products can be prevented and risks of food poisoning owing to consumption of spoiled food products can be reduced. At a moment expiration dates are being used for estimation of food quality and determination of food recall time. The absence of real-time information pertaining to food product source as well as the lack of its real-time condition put the consumer's health at risk of foodborne illnesses. In addition, food recalls lead to billions of dollars of waste every year and this as a result of imprecise predetermined expiry date. In this context, systems that are capable of monitoring and tracing the quality status of food products in real-time during the whole food supply value chain process are highly sought for. Gas nanosensors hold the potential to revolutionize the food industry and agriculture owing to the fact that they can be utilized along the entire food value chain to detect different target chemical contaminants applicable to food spoilage. When the spoilage process of the food product continues, the concentrations of the gases emitted will also rise exponentially. Gas nanosensors therefore enables detection of these gases so to provide early indication of food spoilage thus ensuring food safety, quality, authenticity, freshness as well as traceability.