From single nanowires to smart systems: different ways to assess food quality

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Outline: Metal oxide nanowires

NH$_3$ sensing performance
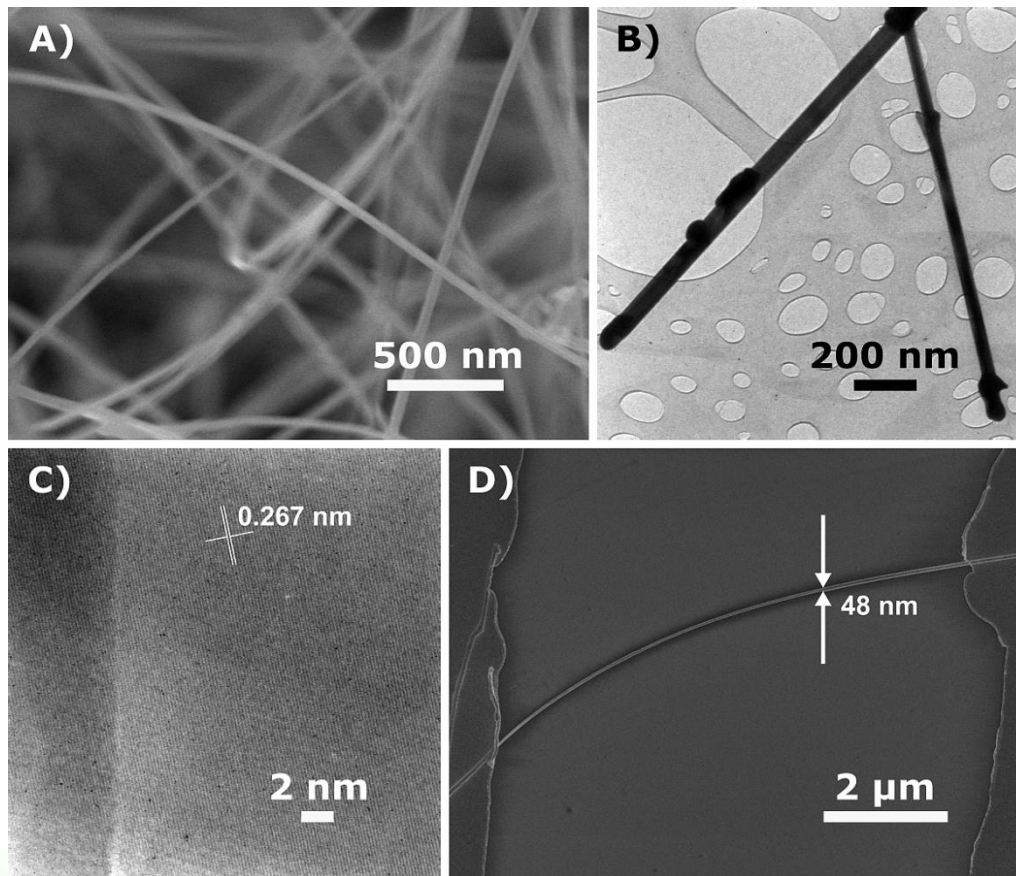
TVB-N (total volatile basic nitrogen)

Fish freshness (vs TVC)

Nano-electronic nose
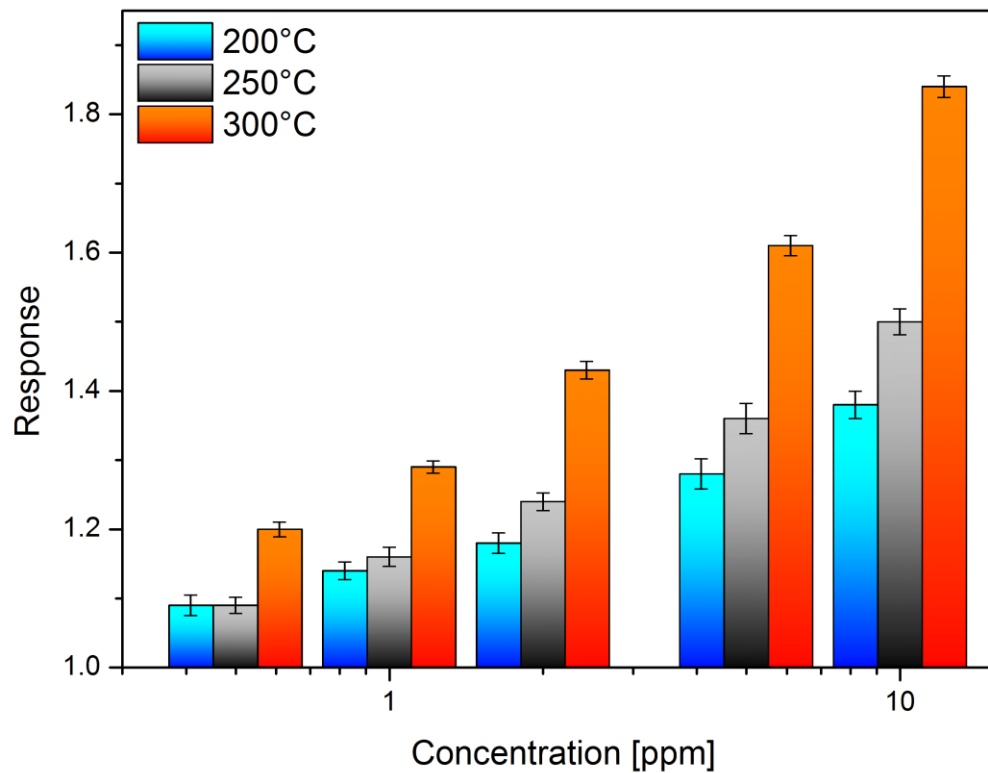
SnO$_2$ nanowires

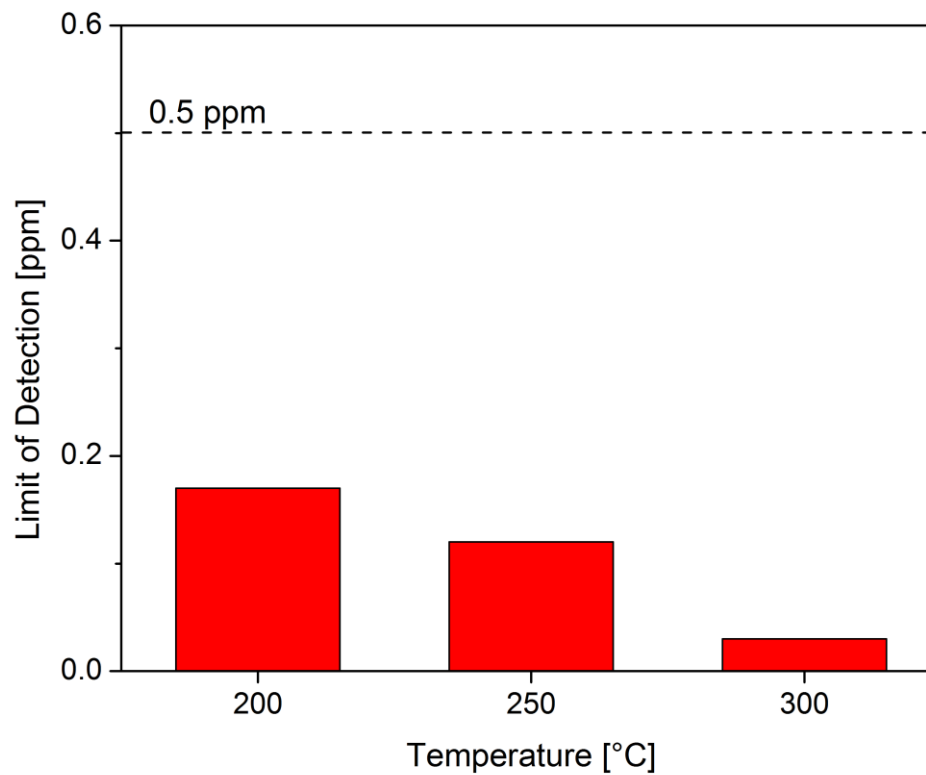thousands times
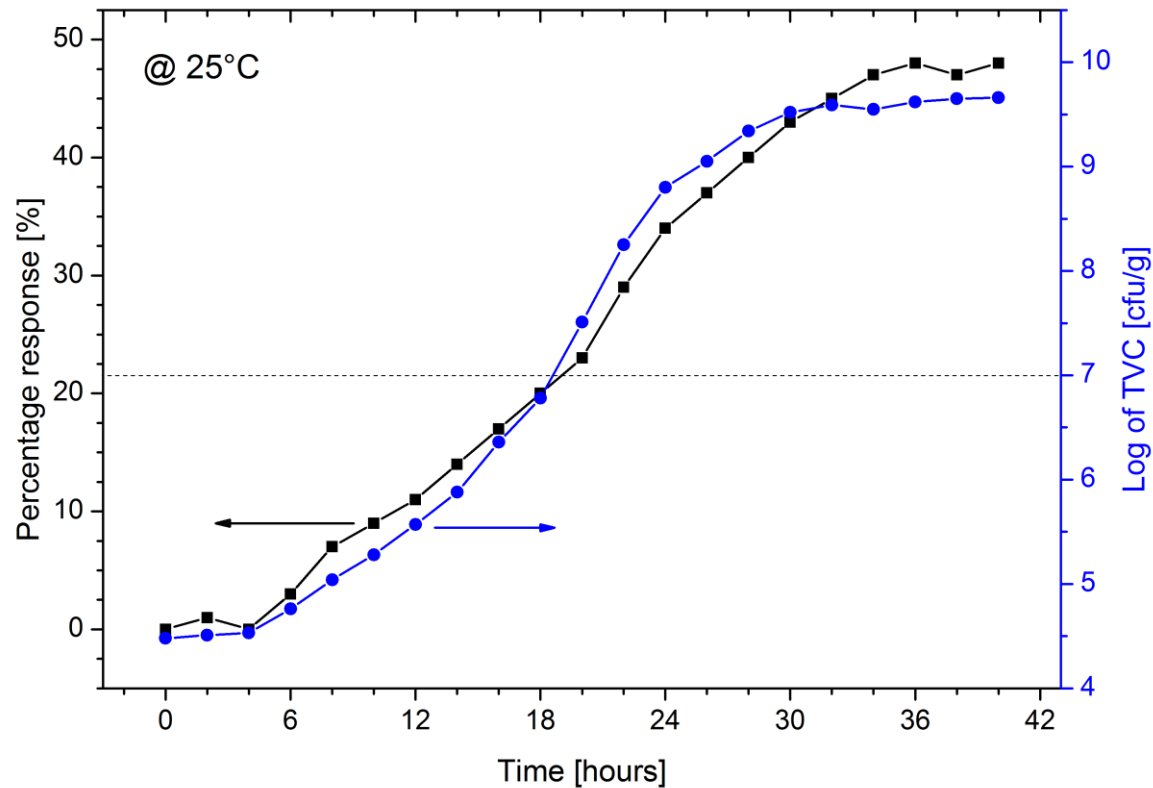THINNER
than human hair

single crystal

chemiresistor

Performance with NH$_3$:
sensor response

Performance with NH$_3$:
limit of detection

Real mackerel fish
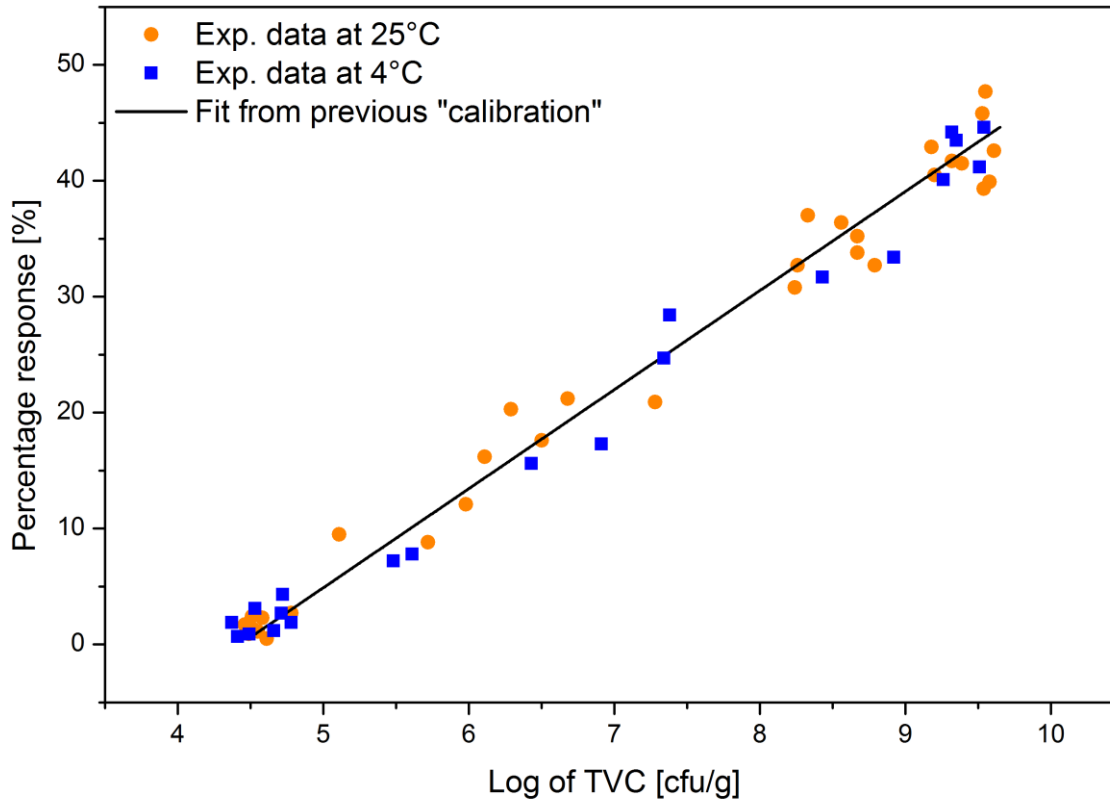
sensor response

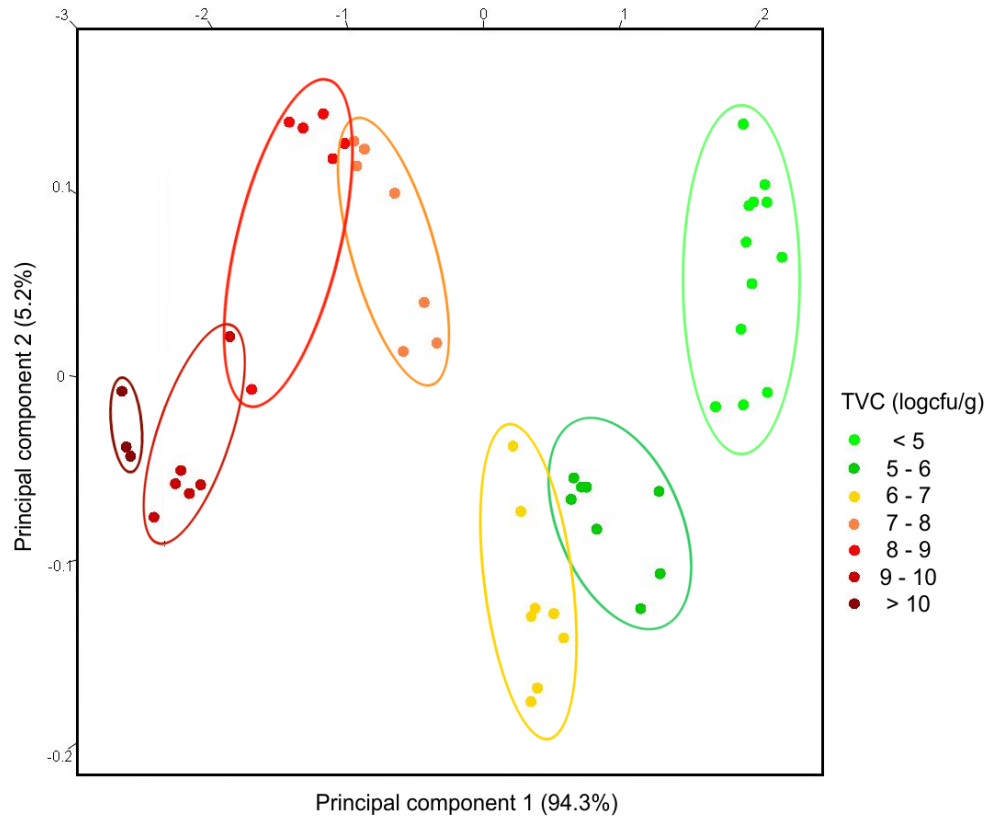**total viable count**

Double-blind measurements

Non-invasive

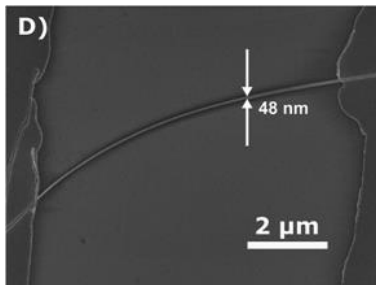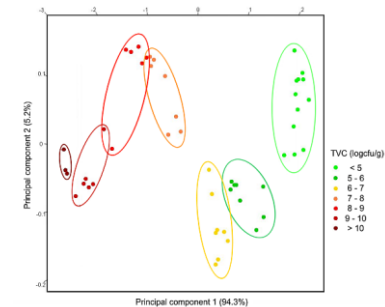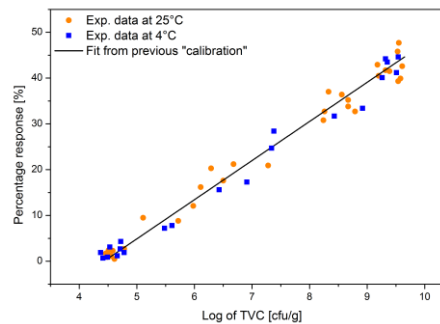**Quick**

Simple

Cheap

Principal Components Analysis

gas response ~ total viable count

nanowire chemiresistor

PCA = selectivity

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