11.5 Wearable sensors for personal exposure monitoring

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With the growing awareness of the need for clean air also comes the strict requirements of highly sensitive and selective sensors that are robust to different environmental conditions [1]. These requirements have been difficult to meet, especially for miniaturised and non-intrusive sensors. In this work we demonstrate novel sensors suitable for integration in wearables for personal exposure monitoring. We present our recent work on particulate matter detection [2] gas sensing. Multiphysics models for particulate matter sensors and fabricated sensors based on nanomaterial composites [3] on flexible substrates. We show that the sensors are selective to NO₂ in the presence of CO₂ and NH₃. This work opens the frontier for on-clothing air pollution sensors suitable for use in personal exposure monitoring.

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References