

Title (en)

IMPROVED CARBON DIOXIDE NANOSENSOR, AND RESPIRATORY CO2 MONITORS

Title (de)

VERBESSERTER KOHLENSTOFFDIOXID-NANOSENSOR SOWIE ATEM-CO2-ÜBERWACHUNGSGERÄTE

Title (fr)

NANODÉTECTEUR DE DIOXYDE DE CARBONE PERFECTIONNÉ ET MONITEURS DU CO2 RESPIRATOIRE

Publication

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Application

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Abstract (en)

[origin: WO2008039165A2] An electronic system and method for detecting analytes, such as carbon dioxide, is provided, using an improved nanostructure sensor (CO2 sensor). The CO2 sensor may comprise a substrate and a nanostructure, such as a one or more carbon nanotubes disposed over the substrate (e.g., as a network). One or more conductive elements may electrically communicate with the nanostructure. A counter or gate electrode may be positioned adjacent the nanostructure. A functionalization material reactive with carbon dioxide may be included, either disposed in contact with the nanostructure or isolated by a dielectric. The sensor may be connected to a circuit responsive to changes in CO2 concentration in the environment. Embodiments are described of medical sensing systems including one or more CO2 sensors. One embodiment comprises a breath sampling cannula which is connected to a sensor unit. In an alternative, the cannula permits supplemental oxygen to be administered, while recovering and measuring analytes in breath samples. The cannula may connect to a portable processor-display unit for monitoring one or more analytes, such as CO2. Another embodiment includes a cannula configured for the monitoring of sleep disorders, such as apnea, comprising one or more sensors disposed adjacent a breath sampling channel, optionally including flow rate or other sensors. The sensors may be connected by wired or wireless links for to a processor/input/display unit. Any of the embodiments may include filters, selectively permeable membranes, absorbents, and the like to precondition the breath sample, may be configured to include complementary chemistry measurements.

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Cited by

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