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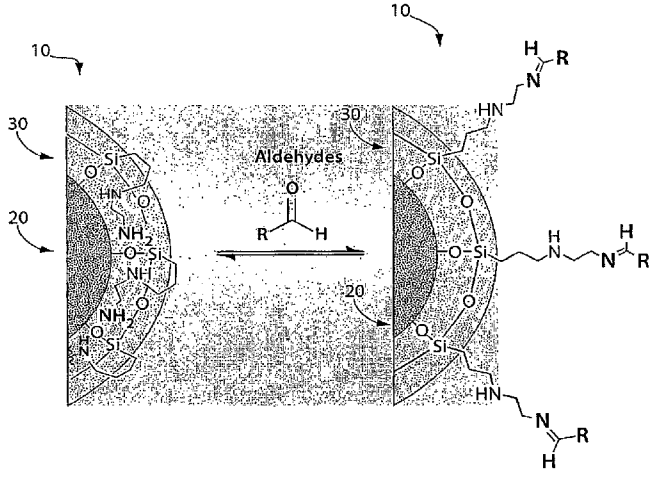
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(54) Title: DETECTION VIA SWITCHABLE EMISSION OF NANOCRYSTALS



(57) Abstract: The present invention relates to methods for determination of an analyte. The invention provides various methods involving exposure of a luminescent material (10) to an analyte wherein, upon interaction with the analyte, a change in luminescence may be observed as a function of the duration of exposure to electromagnetic radiation, thereby determining the analyte. Some embodiments of the invention include the use of highly emissive semiconductor nanocrystals. In an example of the invention a semiconductor ZnO nanocrystal (20) forms a core which is encapsulated in an amine shell (30). In some cases the photostability of the so formed nanoparticle may be affected by interaction of the nanoparticle with aldehydes present within a sample. In some embodiments the presence of aldehydes in a sample can be determined upon photobleaching of the nanoparticle.

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