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(54) **SYSTEMS AND METHODS FOR SYNTHESIS OF ZYOTONS FOR USE IN COLLISION COMPUTING FOR NONINVASIVE BLOOD GLUCOSE AND OTHER MEASUREMENTS**

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CPC G01N 33/49
See application file for complete search history.

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(57) **ABSTRACT**

A synthesizer synthesizes Zyotons, waveforms that without a collision can travel substantially unperturbed in a propagation medium over a specified distance, for extracting via collision computing properties of interest of signals, such as the occurrence/absence of events and presence or concentrations of substances such as blood glucose, toxic chemicals, etc., obtained from high noise/clutter environments. The Zyotons are synthesized using base waveform families/generator functions unrelated to the signal environment. The Zyotons and corresponding carrier kernels include component(s) adapted to correspond to a signal property of interest and other component(s) adapted to correspond to other properties, such as noise and clutter. The number of each type of component(s) may be determined using a representative signal obtained from the environment that is optionally transformed via derivitization, addition of noise and/or another representative signal, etc. A base waveform family/generator function can be selected according to the representative signal morphology.

52 Claims, 207 Drawing Sheets