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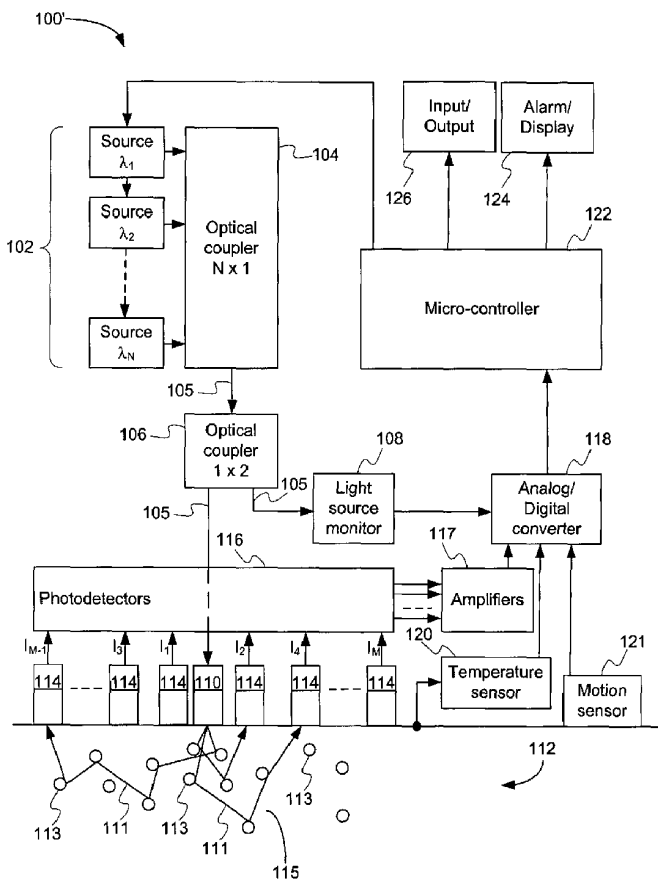
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(54) Title: METHOD AND APPARATUS FOR THE REDUCTION OF SPURIOUS EFFECTS ON PHYSIOLOGICAL MEASUREMENTS



(57) Abstract: A method and apparatus for reducing motion artifact and spurious noise effects when computing estimates of values representative of at least one physiological parameter of a subject. For motion, measured motion values are compared with a motion threshold and the taking of physiological measurements used for computing the physiological parameter estimate values are either suspended until a measured motion value is under the threshold or a correction function is applied to the physiological measurements, the correction function being based on the measured motion values. As for spurious noise, physiological measurements taken while emitters are turned off are subtracted from physiological measurements taken while emitters are turned on in order to eliminate outside noise contamination.

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## **METHOD AND APPARATUS FOR THE REDUCTION OF SPURIOUS EFFECTS ON PHYSIOLOGICAL MEASUREMENTS**

### **TECHNICAL FIELD**

**[0001]** The present invention relates to a method and apparatus for the reduction of spurious effects on physiological measurements. More specifically, the present invention relates to a method and apparatus for the reduction of motion artifact and spurious noise effects on physiological measurements.

### **BACKGROUND**

**[0002]** There is a great potential for applying optical technologies to biology, medicine and sports to track various physiological parameters or states and provide real time information to the user or to medical personnel. While many studies have shown this great potential, very few concrete products using optical technologies have been developed or marketed. Some of the reasons for this are the difficulty to isolate a signal of interest from the various interferences that come from the external environment, the fact that the measurements must be made in a continuous manner on a constantly moving subject and to the variable nature of the human body itself.

**[0003]** The elastic nature of human tissue complicates the taking of optical measurements when a subject is in motion since tissue compression and expansion instantly affect the optical properties of the tissue while the signal of interest remains fairly constant.

**[0004]** A complication that comes with the use of portable measurement devices is that the nature and the sources of the noises are constantly changing. Noise sources are present in both the measurement device itself and the external environment. Electrical noises from AC lines or surrounding electronic devices are obvious noise sources. Optical noise coming from the sun or from artificial lights

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摘要(译)

一种用于在计算表示对象的至少一个生理参数的值的估计时减少运动伪影和寄生噪声效应的的方法和装置。对于运动，将测量的运动值与运动阈值进行比较，并且暂停用于计算生理参数估计值的生理测量值，直到测量的运动值低于阈值或者将校正函数应用于生理测量值，校正函数基于测量的运动值。对于寄生噪声，在发射器开启时从生理测量中减去在关闭发射器时进行的生理测量，以消除外部噪声污染。

