However, when the electro-functional member of the above-described prior art is directly adhered to the skin to be used, there is room for improving the stretch resistance.

【0007】

Therefore, the inventors involved in this application have been dedicated to the examination and found that, by forming a fiber network composed of 1 kinds of resins into a configuration in which the fiber network is coated with another resin, stretch resistance is improved.

【0008】

The present disclosure is made in consideration of the above-mentioned points, and an object of this disclosure is to provide an electro-functional member having improved stretch resistance, and a strain sensor.

【0009】

To achieve the above object, the electro-functional member of the present disclosure is constituted by including a fiber formed in a network shape constituting a fiber network, a coating layer having a Young's modulus lower than that of the fiber covering the fiber, and a conductive layer formed on the surface of the coating layer.

【0010】

Further, the strain sensor of the present disclosure includes a detection section, a measuring section, and an output section, the detection section is attached to the measurement object, a portion where the electrical resistance value changes in response to the shape or change of the measurement object, the measuring section measures the electrical resistance value of the detection section, sends the electrical resistance value to the output section, the output section, based on the electrical resistance value received from the measuring section, and outputs a predetermined signal.

【0010a】

In a first aspect, the present disclosure provides an electro-functional member comprising: fibers that constitute a fiber network and are formed in a network form, the fibers formed of Polyurethane, coating layers that coat said fibers and have a Young's modulus lower than said fibers, and a conductive layer formed on the surface of the coating layers.

【0010b】

In an example, the present disclosure provides an electro-functional member fibers that constitute the fiber network, are formed in a network form, and are formed of one of the material selected from the group consisting of Polyurethane, polyvinyl alcohol (PVA) derivative and polyvinylidene fluoride (PVDF) constituting the fiber network, coating layers that coat said fibers, have a Young's modulus lower than said fibers, and polydimethylsiloxane (PDMS) or and ethylene vinyl acetate (EVA) resin as a material, and conductive layers formed on the surface of the coating layers

【0010c】

In a second aspect, the present disclosure provides a method for fabricating an electro-functional member comprising: forming a fiber network using a Polyurethane solution by an electrospinning process; dipping the fiber network into a solution to form coating layers that coat said fibers and have a Young's modulus lower than said fibers; and forming a conductive layer on the surface of the coating layers.

【0010d】

In a third aspect, the present disclosure provides a strain sensor comprising: a detection section, a measuring section and a output section, wherein the detecting section comprises the electro-functional member according to the first aspect or the second aspect, is attached to the measurement object, and is a section where the electrical resistance value changes according to the shape or change thereof of the measurement object, the measuring section measures the electrical resistance value of the detection section, and sends the electrical resistance value to the output section, and the output section outputs a predetermined signal based on the electrical resistance value received from the measuring section.

【0011】

According to the electro-functional member and the strain sensor of this disclosure, the stretch resistance is improved by coating a fiber network composed of one type of resin with another resin.

BRIEF DESCRIPTION OF THE DRAWINGS

Claims

1. An electro-functional member comprising:

fibers that constitute a fiber network and are formed in a network form, the fibers formed of Polyurethane,

coating layers that coat said fibers and have a Young's modulus lower than said fibers, and

a conductive layer formed on the surface of the coating layers.

2. The electro-functional member according to claim 1, wherein the coating layers are formed of polydimethylsiloxane (PDMS) and/or ethylene vinyl acetate (EVA) resin.

3. The electro-functional member according to claim 1 or 2, wherein

the fiber network is formed in a sheet shape,

the conductive layer is formed on one main surface side of the fiber network.

4. The electro-functional member according to claim 3, further comprising:

another conductive layer formed on another main surface of the fiber network.

5. A method for fabricating an electro-functional member comprising:

forming a fiber network using a Polyurethane solution by an electrospinning process;

dipping the fiber network into a solution to form coating layers that coat said fibers and have a Young's modulus lower than said fibers; and

forming a conductive layer on the surface of the coating layers.

6. A strain sensor comprising:

a detection section, a measuring section and a output section, wherein

the detecting section comprises the electro-functional member according to any one of claims 1 to 4, is attached to the measurement object, and is a section where the electrical resistance value changes according to the shape or change thereof of the measurement object,

the measuring section measures the electrical resistance value of the detection section, and sends the electrical resistance value to the output section, and

the output section outputs a predetermined signal based on the electrical resistance value received from the measuring section.