

Title (en)
EPIDERMAL SENSOR SYSTEM AND PROCESS

Title (de)
EPIDERMAL SENSOR SYSTEM UND VERFAHREN

Title (fr)
SYSTÈME ET PROCÉDÉ DE CAPTEUR ÉPIDERMIQUE

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Application
EP 15768202 A 20150327

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Abstract (en)
[origin: WO2015148957A1] Epidermal electronics are sensors with mechanical properties matching human epidermis. Their manufacturing process includes photolithography and dry and wet etching within cleanroom facilities. The high cost of manpower, materials, photo masks, and facilities greatly hinders the commercialization potential of disposable epidermal electronics. In contrast, an embodiment of the invention includes a low cost, high throughput, bench top "cut and paste" method to complete the freeform manufacture of epidermal sensor system (ESS) in minutes. This versatile method works for many types of thin metal and polymeric sheets and is compatible with many tattoo adhesives or medical tapes. The resultant ESS is highly multimaterial and multifunctional and may measure ECG, EMG, skin temperature, skin hydration, as well as respiratory rate. Also, a stretchable planar coil made of serpentine ribbons can be used as a wireless strain gauge and/or a near field communication (NFC) antenna. Other embodiments are described herein.

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Citation (search report)
• [X] US 2011184269 A1 20110728 - SAUTER-STARACE FABIEN [FR], et al
• [X] US 2006183989 A1 20060817 - HEALY JAMES W [US]
• [A] US 5494730 A 19960227 - CALHOUN CYLDE D [US], et al
• [X] US 2013041235 A1 20130214 - ROGERS JOHN A [US], et al
• [X] US 2013245388 A1 20130919 - RAFFERTY CONOR [US], et al
• [X] SCHUETTLE M ET AL: "Fabricating microelectrode arrays by laser cutting of silicone and platinum foil", JOURNAL OF NEURAL ENGINEERING, INSTITUTE OF PHYSICS PUBLISHING, BRISTOL, GB, vol. 2, no. 1, 1 March 2005 (2005-03-01), pages S121 - S128, XP020093418, ISSN: 1741-2552, DOI: 10.1088/1741-2560/2/1/013
• [X] D.-H. KIM ET AL: "Epidermal Electronics", SCIENCE, vol. 333, no. 6044, 12 August 2011 (2011-08-12), pages 838 - 843, XP055298216, ISSN: 0036-8075, DOI: 10.1126/science.1206157
• See references of WO 2015148957A1

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