

Media communiqué

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CTI Medtech Award 2006

Intelligent T-Shirt Monitors Heartbeat

Just pull on a T-shirt to measure and record your heart activity, instead of your doctor having to wire you up to a machine – one of those simple but brilliant ideas.... The jury at the CTI Medtech-Awards in Bern yesterday thought so too and honored the project with this year's prize, worth CHF 10,000. Empa's work in developing the T-shirt with integrated electrodes, in collaboration with various industrial partners, was selected from over forty other entries for the prize. The system enables the electrocardiogram (ECG) signals to be recorded wirelessly so it can be used for the long term monitoring of heart patients.

In order to diagnose correctly patients with heart problems, but also to monitor top athletes during and after their sporting exploits, it is essential to be able to record their ECG signals uninterruptedly over long periods of time. Ideal for this purpose would be a measuring system integrated into an item of clothing which could be worn by athlete and patient alike during both phases of bodily exertion as well as resting periods. In collaboration with partners from the sportswear branch ((Odlo, Huenenberg) and the embroidery industry (Bischoff Textil, St.Gall), Empa researcher Markus Weder has developed a T-shirt made of conductive fibers. Attached to the snugly-fitting garment are several textile electrodes which are applied with a special embroidery technique and are capable of recording the wearer's heart activity. These signals are sent to a microchip which then transmits the data by radio to a portable diagnostic instrument.

Another Empa project also makes it to the final selection

On Wednesday, August 30th, about 200 participants waited expectantly to hear the jury's verdict at the CTI Medtech Award. Four finalists had already been selected from the over 40 projects submitted for consideration to the Commission for Technology and Innovation, a division of the Swiss Federal Office for Professional Training and Technology (OPET) dedicated to promoting innovation in technology.

Among the four finalist projects nominated for the prize worth CHF 10,000, apart from «Clothing ensemble for the upper body part with integrated embroidered electrodes for long term monitoring of electro cardiogram (ECG) of elderly people» led by Markus Weder was another Empa project. This was concerned with the integration of conducting fibers into medical and sportswear for muscle stimulation purposes.

Project leader Weder was very pleased with the award. "I'm certain that our project won because we have strong industrial partners and our product has a very good chance of market success." The prize-winning T-shirt project represents proof of the high quality of the innovative applied research performed at Empa. It is also an excellent example of a successful partnership with Swiss industry and other research organizations.

Empa's project partners:

NTB Buchs, Medical Engineering Lab; ETH Zurich, Wearable Computing Lab; Swiss Textile School STF, Zurich; University Hospital Tuebingen; Odlo International AG, Huenenberg; Bischoff Textil AG, St. Gall; Strela Development AG, Steinhausen; Schiller AG, Baar

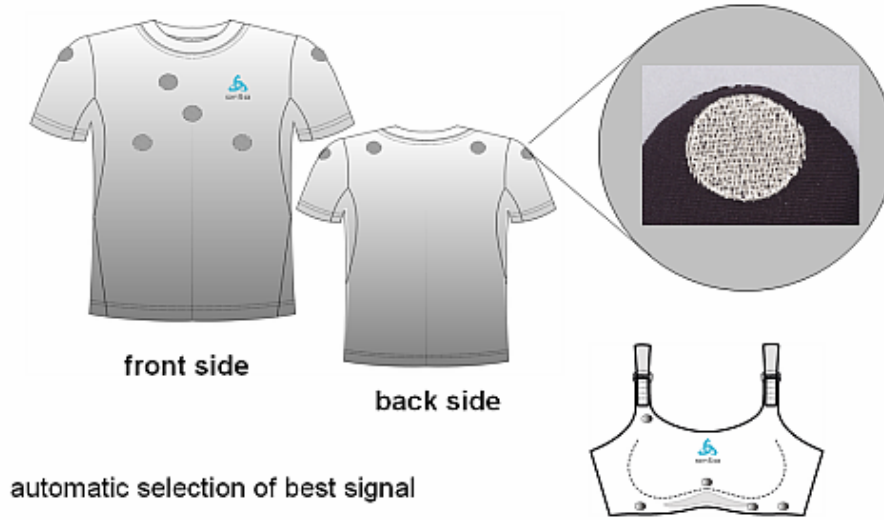
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Multiple Positions of Textile Electrodes on Sensor-Shirt



(Images: Empa)



Embroidered-on textile electrodes can be used to measure heart activity (Images: Empa)



(Please acknowledge source: Swiss Federal Office for Professional Training and Technology OPET/BBT)

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High resolution images can be obtained from martina.peter@empa.ch.