

## Levi's launch heralds new era for e-textiles

**UK smart fabrics specialist Fibretronic is supplying Levi Strauss with the iPod control system for its new RedWire DLX jeans.**

They are just out in the USA and will be launched in Europe in November. The RedWire DLX jeans use Fibretronic's patented 'Fiddler' joystick controller to operate the iPod functions – play/pause, rewind, fast forward and volume. The Fibretronic system also includes an audio socket embedded in the watch pocket to provide a remote port for the connection of earphones.

A textile cable – designed in Levi's signature red – carries the joystick commands and audio signals from the watch pocket, through the jeans, and into the dedicated iPod pocket located on the thigh. The textile cable connects to a specially designed cradle and interface system that acts as a docking station. "We think the RedWire DLX jeans represent a major step forward for the wearable electronics market, opening up new application possibilities in garments,"



said Fibretronic technical director Dianne Jones.

The RedWire DLX jeans are being retailed in both men's and women's styles and are compatible with most of iPod models including: iPod with Video, Nano, Mini, 20GB, 30GB and 60GB iPods.

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## Nanospider teams with Alltracell

**Alltracel Pharmaceuticals, the Irish medical technology company focused on the woundcare, oralcare and cardiovascular health markets, has established a joint venture with Elmarco of the Czech Republic. See page 5.**

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## Strong growth in China nanocoating for U-Right

**Technology Nano International says it now has the capacity to nanocoat a million items of clothing and home furnishings on a monthly basis at its ten-line plant in Nanchang, in Jiangxi Province, China.**

The nanocoating business of Hong-Kong-based U-Right International Holdings recorded a turnover of HK\$434.8 million (€43.9 million) for the year to the end of March 2006. This represented an increase of 38.9% as compared to HK\$313 million for the the previous year and represented 32.4% of the garment manufacturing and retailing group's total turnover.

U-Right's total turnover for the year was HK\$1.3 billion, up 47.1%, and net profit was HK\$103.4 million, compared to HK\$95.9 million in the previous year, representing an increase of 7.7%.

U-Right has been granted the exclusive right to use and license Texcote processing technology, developed by Swedish scientists, in various Asia markets.

Texcote is a chemical process in which nano-sized particles can be impregnated around almost any type of material. In the case of textiles, because these particles can spread upon the surface of the material evenly, the gaps in the fabric are reduced and safeguarded with a protective layer. As a result, particles such as water drops, dust, bacteria, stains and grease find it very difficult to pass through the fabric, and instead stay on the surface of the material.

The particles do not cause any damage to the protective layer and the protective function remains with the material. Because the layer is formed by such small nano-sized particles, it does not noticeably change the original character of the material, such as the shape, colour, hand, feel or smell.

Companies in Hong Kong and China licensing Texcote from U-Right include Nanchang Silvermark, Ningbo Youngor Textile, Hangzhou Wensli and Kiu Hung Industries, as well as Sojitz Corporation in Japan, Namliong Group in Taiwan and Chenab Limited in Pakistan

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## Zegna boosts Peratech

**Leading Milan-headquartered fashion retailer Ermenegildo Zegna is to boost the fortunes of UK wearable textile electronics firm Peratech.**

Zegna, which had global sales of €713 million in 2005, with 473 retail outlets exclusively devoted to its brand, is to introduce the Zegna iJacket with a textile-based iPod control supplied by Peratech later this year.

This follows Peratech's acquisition of Softswitch from New Zealand-headquartered Wool Equities Ltd. in a deal worth €241,000.

Peratech, based in Rocliffe, North Yorkshire, invented Quantum Tunnelling Composites (QTCs) which can transform from a virtually perfect insulator to a metal

like conductor when deformed by compression, twisting or stretching. QTC textile sensors can be designed to interface with most electronic devices that are currently controlled or operated using hard switches, keypads, keyboards, buttons or knobs.

Peratech's low cost QTC textile solutions are allowing more products to be cost viable in wearables, as well as other textile-based markets such as automotive/aircraft interiors, medical, household, toys, games and sport.

Peratech also originally developed the Softswitch technology for integrating electronics into clothing in collaboration with Wool Equities' subsidiary Canesis Network.

Wool Equities chief executive Mark Grady said it became obvious that working with the more advanced Peratech range of technologies was a logical step forward for Softswitch.

"Softswitch and QTC belong together," added Peratech founder and director David

Lussey. "This acquisition enables us to further expand our research and development of wearable electronic textiles and bring new solutions to our clients as this emerging market continues to grow." QTC materials give enormous flexibility in the design, shape, thickness and style of a switch or pressure sensor and can be made in a range of elastomeric forms, including emulsive coatings (down to thicknesses of 10microns), 'bulk' silicone or rubber and textile forms. Peratech and Softswitch pioneered the creation of electronic switches made from textiles and produced the World's first 'wearable electronics' with Apple and Burton in the form of the iPod Jacket in 2002.

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## Nano-polyester to rival Merino wool

**Japan's Teijin has employed a patented new nanotechnology process to provide polyester with the properties of highly expensive superfine Merino wool.**

There has been growing demand for high-grade wool materials, the company says, and superfine raw Merino wool with a fibre diameter of 15 µm or less is used in upscale worsted fabrics such as the Winton, known as the world's highest-quality wool, to produce an elegant look and softness. There is also growing demand for polyester materials for black formal clothing, but achieving comparable colour depth in dyeing has proved limiting.

Teijin has successfully developed a polymer said to have a colour-depth previously unachievable on polyester fibres with a fineness of approximately 10 µm in diameter.

The high colour-depth polymer is produced by designing the gaps between molecular crystals, with crystallization controlled at the nano-level. This technology is protected by three patents.

Teijin aims to sell 4,000 rolls of the new fabric in 2007, at Yen 2,000 (€13.4) per metre.

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# Nanophase textile application under wraps

**Nanophase Technologies based in Romeoville, Illinois, USA, has announced the initial order for a new textile application that is being introduced to the industry on a global basis.**

Details of the customer and application, however, will remain confidential until release.

"This order represents the culmination of more than two years of application development with a leading global supplier to the textile industry," said Ian Roberts, vice-president of sales. "Nanomaterial applications for textiles is one of several target markets for Nanophase. This order represents the first product to be introduced for textile applications and we are optimistic about future development and new product introductions. While we do not expect material revenue from this application during 2006 in the initial launch process, we are optimistic about continuing

revenue growth from the textile market over the next few years."

Nanophase zinc oxide, copper oxide and doped zinc oxide products sold under the NanoTek trade name have uses in antimicrobial products in various products including textiles

They are highly stable to heat and a variety of harsh environments and their small particle size results in little influence on the final formulation in terms of clarity, rheology, surface texture, gloss or physical/mechanical properties.

Separately, Nanophase has announced the commercial availability of nanocrystalline tin oxide produced by the company's patented NanoArc Synthesis process using the most recent advances in finite particle size control.

NanoArc Tin Oxide consists of non-porous, dense and discrete particles with an average size of approximately 20 nanometers. The new nano-engineered material is available as solid nanoparticles or as a highly stable

dispersion in either aqueous or various organic media at high concentrations. It is suitable for applications which include antistatic coatings and in polishing materials for various media, as well as electrical and electronic components, advanced ceramics and industrial catalysts.

Using a platform of patented nanomaterial technologies, Nanophase creates products with unique performance attributes from two ISO 9001:2000 and ISO 14001 facilities. It owns or licenses 18 United States and 43 foreign patents and patent applications.

Nanophase announced that its second quarter 2006 revenue was approximately \$2.4 million.

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## Shape memory from Schoeller

**Shape memory comes to fabrics with Schoeller of Switzerland's new c\_change membrane technology.**

The hydrophilic membrane is set to a particular temperature range and as soon as higher temperatures or body warmth result in greater moisture which has to be wicked away, it reacts. The flexible polymer structure adjusts to allow water vapour to escape quickly to the outside air. As soon as the body produces less heat energy and therefore less moisture, the polymer structure returns to its original condition. As a consequence, body heat is stored and protection built up against cold.

Its effectiveness has been confirmed in tests employing the double-climate chamber measuring method developed at EMPA in Sant Gallen, the Swiss research institution for material science and technology.

Schoeller is also combining this membrane technology with a new type of lamination. Dots of vapour-permeable polyurethane are applied allowing the space between them to breathe and moisture to escape through them.

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## Bagir wires its business suits

**High-end manufacturer of men's and women's tailored clothing Bagir is introducing the iPod business suit for men.**

Israel-headquartered Bagir works with major retailers throughout the US and UK including Brooks Brothers, Lands End and Marks & Spencer. The suits are expected to hit the racks at the end of November.

The Bagir suit jacket integrates Eleksen's ElekTex smart fabric touchpad technology, which transforms a lapel into a five-button electronic control panel. The suit is machine-washable and wrinkle-resistant.

"We selected Eleksen's touch-sensitive fabric to create an accessible interface between our clientele and their iPods," said Offer Gilboa, CEO of Bagir. "ElekTex is the only product on the market that is not disruptive to the design of our suits. By integrating ElekTex, Bagir is able to introduce a trend-setting suit that enables iPod-lovers to play, pause, skip tracks and adjust the volume on their iPods from their jacket lapels."

Previously, Bagir had worked with another supplier of wearable interfaces, but recently turned to Eleksen because of the benefits that it offers to designers and its ability to meet Bagir's tough durability standards.

"This partnership is proof that wearable technology is moving from its roots in sportswear to the boardroom and from the slopes to the street," said Robin Shephard, CEO of Eleksen. "The partnership with Bagir is testimony to the fact that ElekTex is helping to redefine the way that the apparel industry participates in the growing trend for portable entertainment. Bagir has grabbed the future with both hands in this exciting new innovation which will change the way we look at businesswear forever."

ElekTex is the breakthrough touch-sensitive textile which is also lightweight, flexible, durable and washable. Virtually undetectable once integrated, ElekTex transforms clothing into must-have-fashion for the billion dollar portable MP3 and mobile phone market.

The Bagir iPod Suit will be available in five styles, and has a suggested retail price of £149.

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# Philips Lumalive dazzles in Berlin

**At the recent IFA electronic products show in Berlin, Philips Research demonstrated jackets and furniture featuring its new Lumalive technology.**

Lumalive textiles contain LEDs (light emitting diodes) that display full colour moving images on clothing.

They can display text, graphics and animations and are soft and flexible, and fit invisibly into the fabric.

Although the technology has been developed only recently early prototypes were exhibited at IFA 2005 – Philips says it has made immense progress in fully integrating Lumalive fabrics into garments ready for commercialisation. Fabrics like drapes, cushions or sofa coverings become active when they illuminate.

The garments feature panels of up to 200 by 200 square millimetres, although the active sections can be scaled up to cover much larger areas such as a sofa.

Taking the Lumalive fabrics from prototypes to integrated products has been a major challenge," said Bas Zeper, managing director of Photonic Textiles at Philips Research. "The light emitting textiles have



to be flexible, durable and operated by reasonably compact batteries. Fitting all that into a comfortable, lightweight garment is a considerable engineering success."

"What Philips Research showed last year were research prototypes – this year the jackets and furniture represent versions that are ready to go into commercial production, and include integrated power sources and control electronics."

The products include features that make them practical for daily use. For example,

when integrating the Lumalive fabrics into the garment, Philips Research has made the parts that can't be easily washed – such as the batteries and control electronics – simple to disconnect and reconnect after the garment has been cleaned. Even the light-emitting layer can be easily removed and refitted.

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Best wishes  
Adrian Wilson,  
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