



SCRIPT  
Futuris - 09  
**Textiles for the Future**

**Comment**

It's the fashion show season, and in parallel, Paris has been hosting the largest Textiles Show in the world: Première Vision.

742 exhibitors from thirty countries presented their offerings for the Autumn Winter 2007/2008 season. A festival of wools, cottons and artificial fabrics. And this year too, some special guests: so called "intelligent fabrics".

Textiles, for example, that have built-in protection against staining.

**ITV Christine Hübner:**

"If you imagine normal cloth being flat, with nanotechnologies the cloth takes a form a little like mountains. The structure's invisible of course. And dirt can't stick to a material like that, it runs off. So here I'll put a bit of ketchup on and I'll take some water and there, you see, it's a white cloth and you can rinse off the dirt immediately".

**Comment**

Stain resistant materials, bacteria resistant materials, mosquito resistant materials, materials that can absorb smell or reduce perspiration, materials that can measure your heartbeat or your breathing pattern... Textiles that regulate your body temperature... Textiles that are totally impermeable, textiles that are ultra absorbent.

Cosmetic-textiles that moisten the skin or apply perfume; the world of intelligent textiles is expanding and a multitude of European research centres are part of it.

Here at Centexbel in Belgium, not far from Liege, scientists are dreaming up the next generation of intelligent or functional textiles. And in this laboratory prototype maker Martine Degueldre's job is to transform these dreams into reality.

Here we have a pullover that's entirely knitted. The keyboard is supple. It enables the user to send a range of different commands. It was conceived for handicapped people: to allow them for example, with a given code, to open a garage door, to switch on the television.

We've also got undergarments that allow you to monitor different body functions: breathing, heartbeat and so on, using electrodes that are in direct contact with the body.

We can also insert fibre optics into carpet. They're integrated in the production process, and to make the carpets luminous. They can be used for emergency exits, for example, if there's a power cut... or just to create pretty patterns within the carpet.

We've also used fibre optics in knitting. This creates the possibility of luminous knitwear. It can be used for outdoor safety clothing, or it can be stuck on walls and ceilings for decorative effects.



The most complex of these prototypes is probably the textile keyboard, which can also function as a simple calculator. Jean Léonard has spent two years working on it - the key? Is the interaction of materials that do and don't conduct electricity?

#### **ITV Jean Léonard**

"In addition to the conventional materials, which are electrical insulators, we've used metallic fibres that do conduct electricity. The principle is that when you don't apply pressure, there's no contact between two conducting layers. And when you apply pressure, you create a contact between the two layers. In addition to this, there's a small microelectric component which has been miniaturised as much as possible so that it disrupts the cloth as little as possible, because the goal is to preserve the characteristics of textiles - suppleness and comfort".

#### **4.09**

Suppleness and comfort, those are the watchwords for functional and intelligent clothing. Yvette Rogister is in charge of the microbiology lab at the centre.

She unlocks the microbiological secrets of textiles using this giant microscope. Her research helps build an understanding of how fibres react to the presence of certain nanoparticles - for example cosmetic nanoparticles that release perfumes into clothes.

#### **4.28 silence.**

#### **4.42 F**

These are microcapsules which contain a perfume that's integrated within the fibres that make up the cloth. What we've been looking at here is how uniformly the microcapsules are spread across the cloth, and also we wanted to have an idea of their dimensions.

And then after the material's been used, we wanted to see how the microcapsules react - they're supposed to explode and release their perfume. And in fact what we've seen here is that there are indeed microcapsules that have exploded and thus released their perfume.

#### **5.20**

At the Institut Francais du Textil et Habillement, outside Lyon intelligent textiles are tested for resistance:

#### **5.25**

- against heat,

#### **5.29**

- flames

#### **5.33**

- tearing

#### **5.35**

- liquids

#### **5.40**



Their engineers work on several Europe wide projects and also invent their own textiles for the future.

**5.52**

Once the concept has been established, the cloth is modelled to a chosen design.



#### **5.56**

and added to a virtual collection of tomorrow's fashion.

#### **6.00**

For dreams to become a reality, you need a plasma machine like this. Here, in a vacuum, textiles are put in contact with different gases - oxygen, nitrogen, fluoride, or ammonia.

In this way researcher Jaques Maguin changes the textile properties. Fluorides for example make normally absorbent cotton impermeable, while nitrogen makes normally resistant materials absorbent.

#### **6.27 H**

"Nitrogen will separate off and try to impregnate itself in the textile. So using nitrogen gas you can make a kind of water plasma, which will attach itself to the surface. And when you put water next to this there's a very strong affinity, and that makes a material that absorbs very easily, which is good for cleaning materials, or for absorbing perspiration, or for making sticky materials or for making printable materials".

"On the other hand, if you put fluoride gas on cotton, you'll have a water resistant cotton, so when it rains it will be impermeable, but you'll still have the comfort of cotton".

#### **6.59**

In these workshops a European programme to make threads of the future is being researched. Christophe Angeloz is developing polypropylene thread that resists high temperatures. The polypropylene is mixed with chemical microparticles whose composition is a commercial secret. The mixture is pummelled, melted, stretched and woven into yarn.

#### **7.23 H**

"It's all polypropylene. But by changing the manufacturing conditions - like the extrusion temperature, the weaving speed, the stretching tension, you can optimise the thread production".

#### **7.42**

Threads that, like others made at the centre, will now undergo testing to see if they might be useful in the creation of the new intelligent textiles of the future.