

# Specialty fabrics Review

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← Fiber optic light-diffusing curtains from Brochier Technologies, Villeurbanne, France, are made from a weave of LED lights and silk, create striking illuminated effects. Shown at Futuro textiles: Surprising Textiles, Design & Art, Paris, France. Photo: Harrison Judd.

## SCIENCE + ART + INDUSTRY

Exhibitions showcase pioneering developments in fabrics designed for a sustainable future.

BY JUNE BISANTZ

In Paris this summer, two ground-breaking exhibitions explored the rapidly blurring boundaries between art, science and textiles. En Vie/Alive: New Frontiers at La Fondation EDF (Environmental Development Foundation) presented experimental and developing concepts in textiles, while Futuro textiles: Surprising Textiles, Design & Art at the Cité des Sciences et de l'Industrie showcased new products that are already defining the future of fabric.

With photocatalytic fabric that cleans its own environment, skateboards made of flax, intelligent fabrics that monitor mood changes, and fabric that grows itself, these exhibitions revealed the often startling concept and science behind tomorrow's specialty fabrics. Keeping an eye on the future—not just of fabrics, but of our planet—bioengineering, technology and creativity are combining to offer new eco-friendly solutions to old problems.

### Future perfect?

An optimistic vision for the future was evident in En Vie/Alive's bold projects in progress that went to the cutting edge of textile manufacture with bio-based ideas for a healthier planet.

Biotechnology or synthetic biology, a controversial scientific process by which algae, fungi and bacteria are manipulated to “grow” fabric, played an important role in this exhibition. The appealing potential to yield affordable, sustainable products, balanced by a natural mistrust of technology that can self-replicate, made the exhibition's explorations of these scientific breakthroughs intriguing.

For example, a bomber jacket from Suzanne Lee's London-based design consultancy, Biocouture ([biocouture.co.uk](http://biocouture.co.uk)). This translucent, sustainable and compostable garment is made from fabric grown by micro-organisms fed on tea and sugar. Faber Futures, a design project developed by Prof. John Ward of University College, London, combines established



### THE AIR OUT THERE



Photo: Harrison Judd

Bringing together fashion and chemistry, the Herself dress from artist Helen Storey of Catalytic Clothing is a photocatalytic garment that purifies the air around itself by chemically breaking down airborne pollutants.

practice and biotechnology, with traditionally screen-printed textiles that use dyes produced by bacteria.

Carole Collet ([carolecollet.com](http://carolecollet.com)) from Central Saint Martins College of Art and Design in England created BioLace, a group of fictional hyper-engineered plants that transform themselves into mini-factories. BioLace proposes a future in which plants will grow fabric. Requiring only sun and water, the plants will allow textile manufacturers to become more energy efficient and less reliant on chemicals.

Another theoretical project, Future Venice from Rachel Armstrong of Impossible.me, a laboratory/think tank in Montenegro, proposes the use of dynamic semi-living cells called protocells to “grow” an artificial lime-

stone reef underneath the city’s foundations and prevent it from sinking.

En Vie/Alive’s collection of experimental projects suggests a world in which environmental and social problems are addressed at the cellular level, including biodegradable housing, land and waste management and fabric manufacturing.

### Active fabrics

The diverse collection of new and emerging products featured in Futuro textiles: Surprising Textiles, Design & Art revealed ideological similarities among the scientists, artists, engineers and designers who are simultaneously developing products that address shared concerns for the world of today—and tomorrow.

For example, an emphasis on air filtering and purification can be seen in several disparate projects. The Herself dress, by artist Helen Storey of Catalytic Clothing ([catalytic-clothing.org](http://catalytic-clothing.org)), London, England, is made of polyester, silk, sand and cement, with photocatalytic properties that purify the surrounding air by breaking down airborne pollutants. The AirMaster Carpet, developed by DESSO ([desso.com](http://desso.com)), headquartered in the Netherlands, also cleans and preserves air quality by trapping and removing airborne dust particles. And the CBRN protective coverall developed by Ouvry ([ouvry.com/CBRN](http://ouvry.com/CBRN)), Lyon, France, made from activated carbon micro-beads and nonwoven fabric, filters pollution and protects the wearer from radiation and bio hazards.

The Mood Sweater by artist Kristin Neidlinger of Sensoree ([sensoree.com](http://sensoree.com)), San Francisco, Calif., made of cotton, Lycra®, sensors and recycled plastic, communicates mood fluctuations through changes in the garment’s color. The futuristic garment is directly related to medical fabrics used in the intelligent T-shirts developed by CSEM, Neuchatel, Switzerland ([csem.ch](http://csem.ch)), and Smartex, Pisa, Italy ([smartex.it](http://smartex.it)), that monitor mood alterations in the treatment of psychological disorders.

Photo: Harrison Judd



## Industrial options

Technical textiles also appeared in more than one context throughout the Futuro Textiles exhibition. Lightweight, strong, safe fabrics made from fiberglass, carbon, basalt and flax have created new manufacturing options for the sports, transportation and construction industries.

Flax, a fiber used since ancient times, has re-emerged as a leading technical fiber due to its light weight and high mechanical performance. The three-wheeled SCUBE (scube.fr), developed by Flax Technic-Groupe Dehondt, Notre Dame de Gravenchon, France, is an electric vehicle with parts made from flax fibers—an ecological, recyclable, quiet and highly maneuverable means of transport. Interior spaces made entirely of flax and exterior spaces made from flax and hemp create biodegradable, durable structures that are transforming our notion of the built environment. Recent innovations in technical sports fabrics include helmets and skateboards made from flax and linen; and basalt composite, a material made from heated volcanic rock developed by Basaltex, Wevelgem, Belgium (basaltex.com), is being used to produce snowboards, squash rackets and skis. Basalt can also be spun into yarn that produces a lace-like fabric that, combined with resin, becomes feather-light, industrial-strength furniture.

High-tenacity polyester that repels up to 92 percent of the heat from solar radiation is used to create Pergola Sunworker Cristal, an awning made of perforated micro-texture, solar-protective fabric developed by Dickson Constant (dickson-constant.com), Wasquehal, France. The extraordinary synthetic technical fabric prevents overheating in summer and reverses the process in winter to preserve heat.

Illuminated textiles continue to shape public and private space in increasingly eco-conscious ways. Illuminated fiber optic curtains made from a weave of LED lights and silk, developed by Brochier Technologies, Villeurbanne, France (designpercept.com, brochiertechnologies.com), create the hypnotic illusion of reflected water. Via Lattea,

lightweight commercial-grade furniture by Meritalia's Mario Bellini (meritalia.it, bellini.it), Milan, Italy, is made from steel mesh and recycled grain sacks that are illuminated from within with low-wattage light. And the SonUmbra fiber optic tree, by London-based Rachel Wingfield and Mathias Gmachl (loop.ph), is a mesmerizing light sculpture designed for public spaces, composed of luminescent fibers and photovoltaic cells that gather solar energy during the day and light up at night.

## Grounds for appeal

Geotextile fabrics, used to interact with and protect the larger environment, figured importantly in Futuro textiles, with their remarkable abilities to strengthen unstable road beds, railways and runways, act as buffers against pollution and waste disposal, filter coastal waters and protect against erosion.

The innovative Duracover, developed by Belgium's Bonar Technical Fabrics (bonartf.com), is a bio-based ground cover that uses corn—a renewable raw material—to replace the commonly used synthetic polypropylene. Bontec, also by Bonar, is a corrugated fiber and concrete mattress that filters water and combats erosion on riverbanks, and Colas (colas.com) in Boulogne-Billancourt, France, has developed a nonwoven textile that can slow the progress of cracks in dams.

Both of these innovative and forward-thinking exhibitions envision a sustainable future supported by the environmentally conscious integration of science, art and industry. Fabric is at the center of this vision. It's an ever-evolving medium with the impressive potential to protect and heal our bodies, create spectacular public environments, manage the land, transform industry and ultimately, help preserve the planet. 🌱

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Photo: Harrison Judd