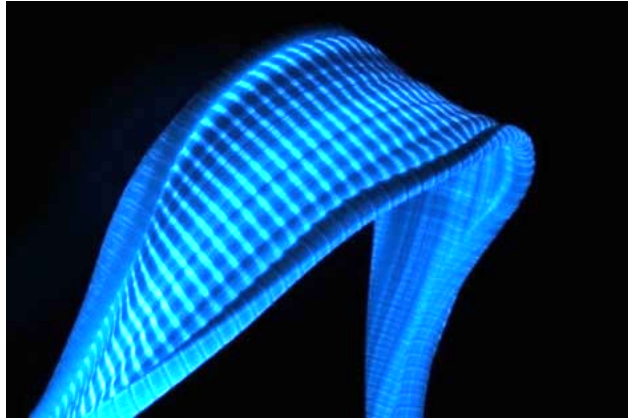




LIGHTEX innovative solution for Backlighting and Light Guides

Julien MORANGE
Automotive Interiors Expo – May, 18th 2011

- ❑ **BROCHIER TECHNOLOGIES**
- ❑ **LIGHTEX TECHNOLOGY**
- ❑ **OVERVIEW of APPLICATION fields**
- ❑ **BACKLIGHTING and LIGHT GUIDES**

□ About Brochier Technologies

- Brochier Soieries Group (since 1890)
 - *Haute Couture*
- Weaving optical fiber started in 1999
- Setting-up Brochier Technologies in 2007
 - Brochier Group 30 people
 - Brochier Technologies 9 people
 - 30 jacquard looms
- Activity growth continuously



Olivier Lapidus - 1999

□ About Brochier Technologies

- **Main activity :**

- R&D in Lighting solutions using optical fiber fabric
- Production of Lightex®

- **Application fields :**

- Lighting – backlighting – design – customized systems
- Transport industry – architecture - safety clothing - medical field

- **Business model**

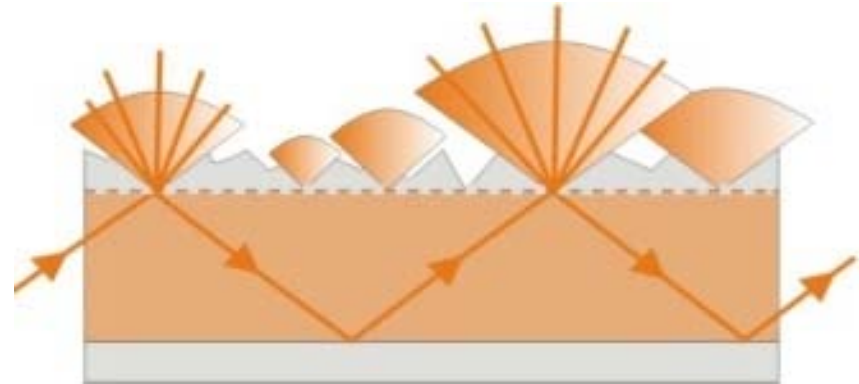
- Lightex® technology always driven to new levels (patents, processes, reliability ...)
- Lightex® production
- Partnerships and technology transfers

❑ Lightex® Technology :



□ Lightex® Technology :

1. Weaving the fiber optics
2. Specific side-emitting process
3. Injection of LEDs' light
4. Power supply and drivers



Side-emitting in optical fiber



1. Weaving



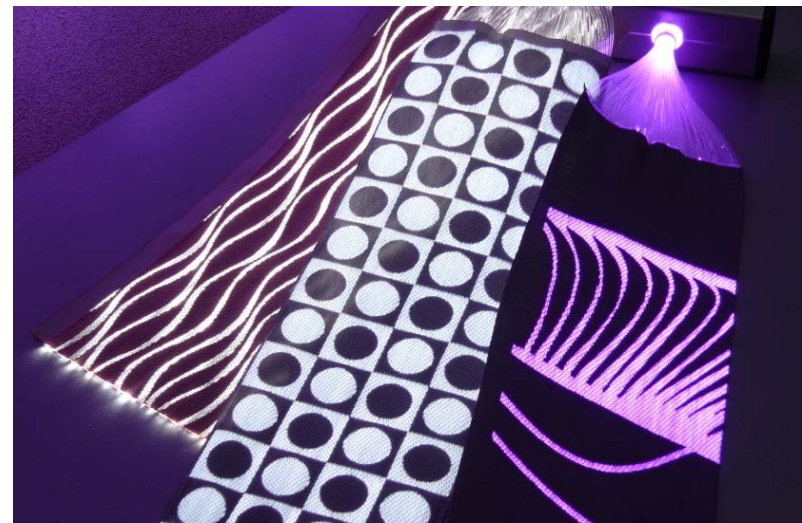
2. Side emitting process



3. Light link

□ Lightex® Technology : Innovative and efficient lighting solutions

- Homogeneous distribution of light on various areas (up to several ten square meters)
- Ultra thin and ultra light weight solution (thickness <1mm ; weight < 600 g/m2)
- Remote light source and electrical parts (no heat – no EMI / RFI)
- Flexible, curved or rigid illuminated surfaces
- Combination possible with other materials (metal, glass, composites)
- Textile aspect : infinite possible patterns



□ Applications – TRANSPORTS – rail



TGV – ambiance lighting



ALSTOM



□ Applications – TRANSPORTS - aviation



Signs



Airbus A350 - Ambiance and security lighting

□ Applications – **TRANSPORTS** - Automobile



CITROËN – C-Airlounge (2003)



□ Applications – TRANSPORTS - Automobile



Door garniture – ambiance lighting



Ambient light Lightex® prototyping

□ Applications – OTHER FIELDS

▪ SAFETY



▪ ARCHITECTURE



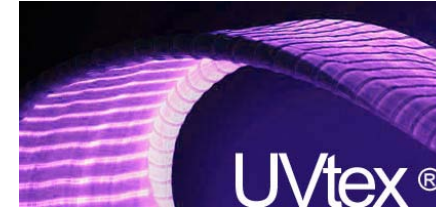
Saint Gobain
Interior layout

▪ ADVERTISING / COMMUNICATION



□ Applications – TECHNICAL

- Photocatalyse (air and water depollution)

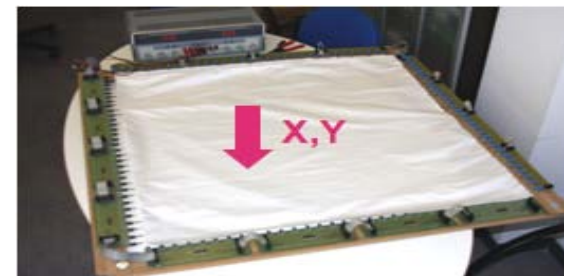


- Photosynthesis (micro-seeweed culture)

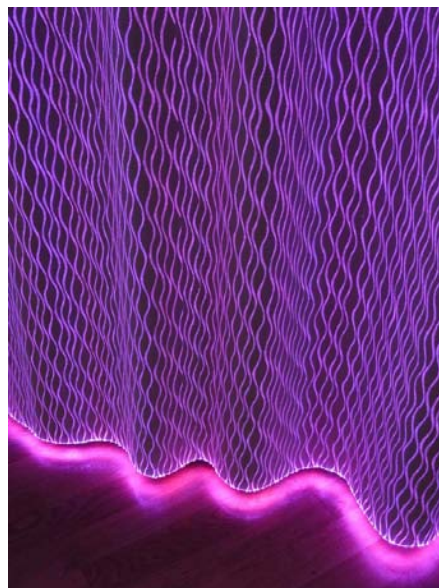


- Phototherapy (Light therapy, skin care)

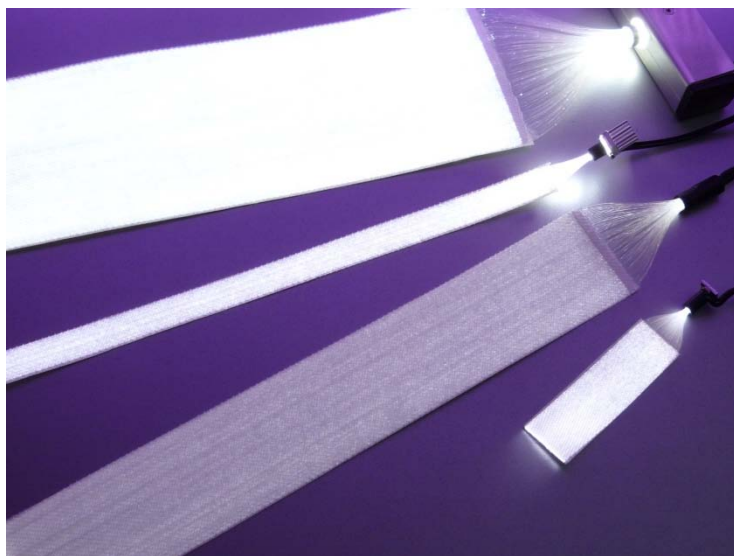
- Sensors (position, pressure...)



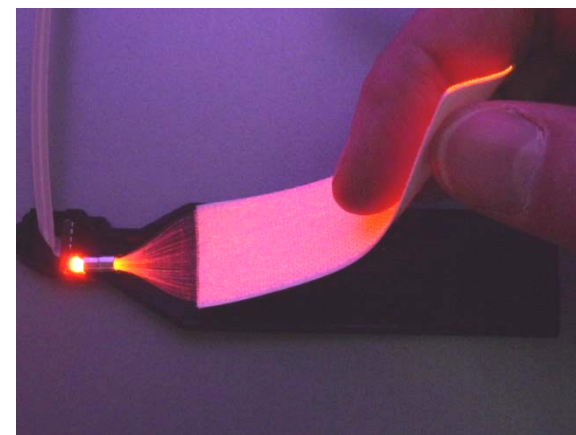
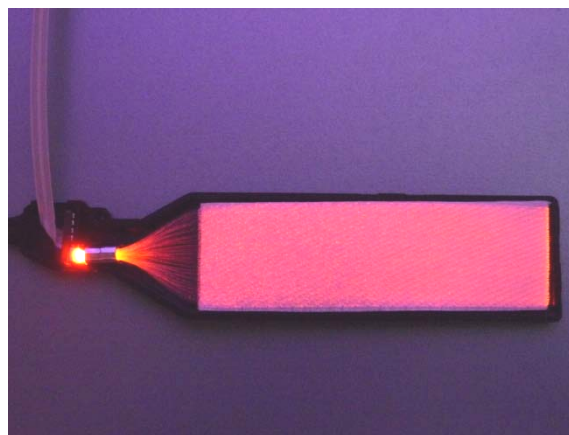
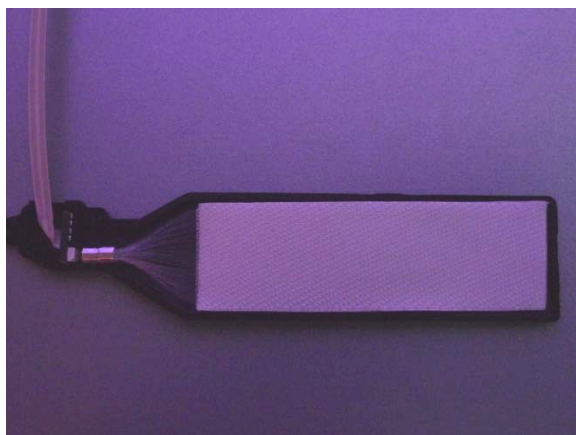
□ Applications – CUSTOMIZED SYSTEMS



LIGHTEX® PANEL – STANDARDS

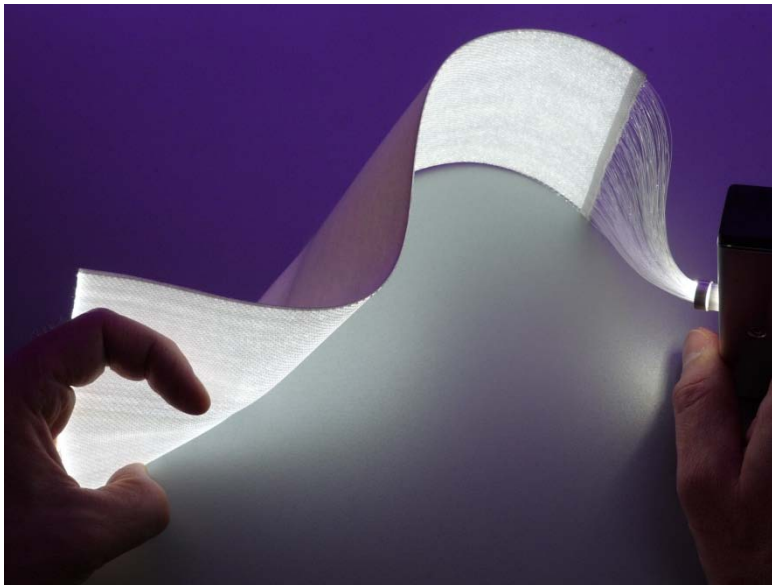


□ Lightex® panel standards – Backlighting



□ Lightex® panel standards – Backlighting

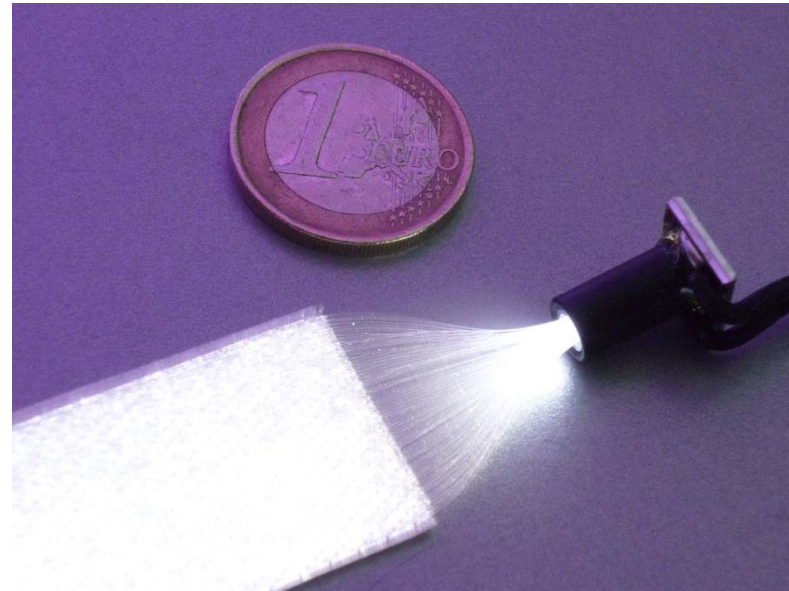
- Homogeneous distribution of light



- Ultra thin and 3D shape

□ Lightex® panel standards – Backlighting

- Remote light source
(no heat, no RFI/EMI)



- High rendering

□ Lightex® panel standards – Light Guides



- Homogeneous on up to 3m long



Lightex® Light Guide with single LED 0.3W

□ Lightex® panel standards – Description



Product Description: Optical fibre fabric panel for lighting applications

Components:
0.5mm PMMA optical fibres
Polyester white yarns
Aluminium connector

Dimensions:
Width (A) : multiples of 15; 50; 100mm
Length (B) : up to 3000mm (can be cut)
Thickness : <1 mm
Minimum bend radius : 10 mm

Weight: < 550g/m²

Light performances:
Luminance : up to 1000 cd/m²
Uniformity : Ratio (max/min) < 1,3

□ Lightex® panel standards



– Product line and luminance performances

SERIES	PART #	DIMENSIONS (mm)					LED used for measures	LUMINANCE (cd/m ²)
		A	B	C	D	E		
LP15-	LP15-100	15	100	25	7	4	1	750
	LP15-200	15	200	25	7	4	1	370
	LP15-300	15	300	25	7	4	1	250
	LP15-500	15	500	25	7	4	1	150
	LP15-1000	15	1000	25	7	4	1	70
	LP15-1500	15	1500	25	7	4	1	50
	LP15-3000	15	3000	25	7	4	1	25

LED characteristics for measurement: (1) NICHIA ref. NFSW036BL @ 150 mA

□ Lightex® panel standards



– Product line and luminance performances

SERIES	PART #	DIMENSIONS (mm)					LED used for measures	LUMINANCE (cd/m2)
		A	B	C	D	E		
LP15-	LP15-100	15	100	25	7	4	1	750
	LP15-200	15	200	25	7	4	1	370
	LP15-300	15	300	25	7	4	1	250
	LP15-500	15	500	25	7	4	1	150
	LP15-1000	15	1000	25	7	4	1	70
	LP15-1500	15	1500	25	7	4	1	50
	LP15-3000	15	3000	25	7	4	1	25
LP50-	LP50-100	50	100	50	10	7	2	100
	LP50-200	50	200	50	10	7	2	50
	LP50-300	50	300	50	10	7	2	35
	LP50-500	50	500	50	10	7	2	25
	LP50-1000	50	1000	50	10	7	2	12
	LP50-1500	50	1500	50	10	7	2	8
	LP50-3000	50	3000	50	10	7	2	4

LED characteristics for measurement: (1) NICHIA ref. NFSW036BL @ 150 mA
(2) NICHIA ref. NSPW500 GS-K1 @ 30 mA

□ Lightex® panel standards



– Product line and luminance performances

SERIES	PART #	DIMENSIONS (mm)					LED used for measures	LUMINANCE (cd/m ²)
		A	B	C	D	E		
LP15-	LP15-100	15	100	25	7	4	1	750
	LP15-200	15	200	25	7	4	1	370
	LP15-300	15	300	25	7	4	1	250
	LP15-500	15	500	25	7	4	1	150
	LP15-1000	15	1000	25	7	4	1	70
	LP15-1500	15	1500	25	7	4	1	50
	LP15-3000	15	3000	25	7	4	1	25
LP50-	LP50-100	50	100	50	10	7	2	100
	LP50-200	50	200	50	10	7	2	50
	LP50-300	50	300	50	10	7	2	35
	LP50-500	50	500	50	10	7	2	25
	LP50-1000	50	1000	50	10	7	2	12
	LP50-1500	50	1500	50	10	7	2	8
	LP50-3000	50	3000	50	10	7	2	4
LP100-	LP100-100	100	100	70	25	10	3	1000
	LP100-200	100	200	70	25	10	3	500
	LP100-300	100	300	70	25	10	3	380
	LP100-500	100	500	70	25	10	3	250
	LP100-1000	100	950	70	25	10	3	120
	LP100-1500	100	1500	70	25	10	3	75
	LP100-3000	100	3000	70	25	10	3	40

LED characteristics for measurement: (1) NICHIA ref. NFSW036BL @ 150 mA
 (2) NICHIA ref. NSPW500 GS-K1 @ 30 mA
 (3) OSRAM ref. Dragon LUW W5AM @ 700 mA

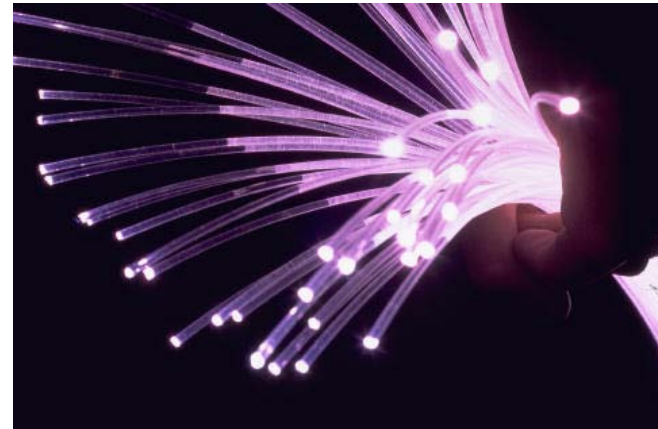
□ Lightex® : complementary to LED technology

A high efficiency light diffuser

- **Change a single light spot into an illuminating surface**
 - *New focus on comfort and well-being*
 - *3D shape possibilities*
- **Remote light source**
 - *Inert illuminating area (no EMI/RFI – no heat)*
 - *ultra thin and light weight solution*
- **Processes knowledge ensures controlled light distribution**
 - *Uniform lighting surfaces or patterns*
 - *small to very large surfaces possible*
- **Unique textile properties**

□ Contact

BROCHIER TECHNOLOGIES SAS
90, rue Frédéric Fays
F-69100 Villeurbanne
www.brochiertechnologies.com
contact@brochiertechnologies.com



THANK YOU