



HISTORY

PERFOS benefits from a 40-year technological expertise in special optical fibers in Lannion, France.

1970's
The first optical fibers are drawn at the CNET (now Orange Labs)

2003
Creation of the R&D platform PERFOS (Platform for Studies and Research on Microstructured Optical Fibers) as an organization

2007
PERFOS becomes a Technological Innovation Center, approved by the Brittany Council.

2011
PERFOS brings the project « cluster » to fruition.
Creation of the « Photonics Bretagne » cluster. PERFOS becomes the R&D platform of Photonics Bretagne.

2013
Growing demand worldwide with more than 20% of international sales

2014
The turnover of PERFOS is increasing of 17%

A dedicated team

PERFOS is composed of a team of expert engineers and technicians specialized in microstructured optical fibers.

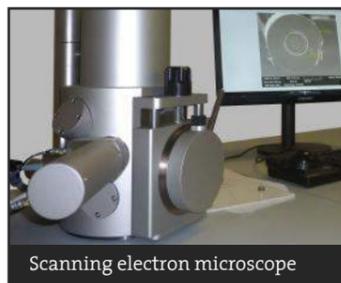
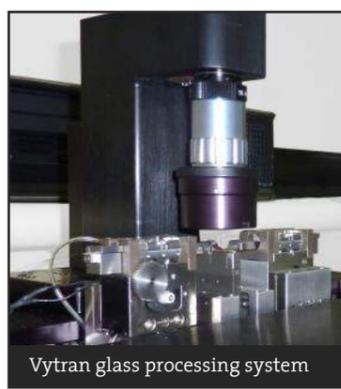
They all possess a high level of expertise and are involved in developing solutions for various applications such as scientific, defense/security, biophotonics, telecom, machining, sensors, lasers, etc.

Equipments at the forefront of technology

PERFOS platform is fitted with industrial and high tech equipments to meet the needs of customers' application requirements.

These equipments include :

- 2 drawing towers
- MCVD lathe
- Preform analyzer (index profile)
- Scanning electron microscope
- Spectral attenuation measuring system
- Glass processing system (tapers, couplers, complex splices)
- Dispersion measuring system
- Optical fiber spooler



Developing custom microstructured fibers for your application



Silica Active and Passive Fibers

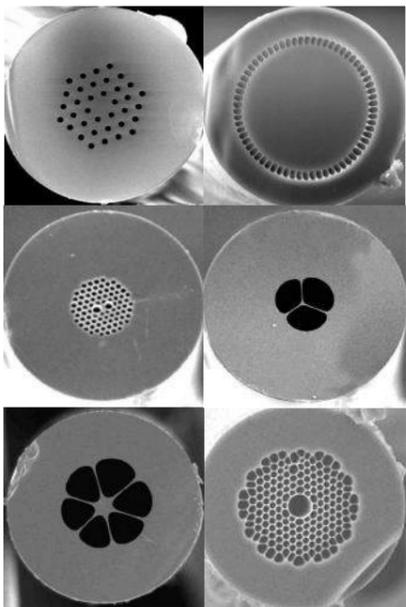
Chalcogenide Microstructured Optical Fibers



PERFOS develops Custom Microstructured Fibers

- From conception to integration
- Custom design
- Different material (silica or chalcogenide)
- Preform, capillaries, tapers, fiber components
- For all applications: scientific, defense, biophotonics, energy, telecom, etc.

Conception



Silica : Active and Passive Fibers

- PM, custom dispersion, rod type
- Air-clad, double-clad, LMA
- Photonic Band Gap (hollow core, all-solid)
- Custom coatings
- Doped Rods (Boron, Fluorine, Germanium)
- Multi filament fibers
- Customs rods, tubes, capillaries, tapers

Chalcogenide Microstructured Optical Fibers

- Ultra highly nonlinear fibers (up to $50\,000\text{ W}^{-1}\text{ km}^{-1}$)
- Transmission in the Mid-IR (up to $10\ \mu\text{m}$)
- Custom design

Solutions

- Sensors
- Lasers
- Spectroscopy

BUSINESS ACTIVITY

Local key R&D partner for cluster's members such as laboratories and industries from start-up to multinational companies

Many references in France

- French laboratories : CNRS, CEA, ONERA
- Industries : DCNS (naval), Orange (telecom), DGA (defense), etc.

Growing demand worldwide

- USA, Australia, New-Zealand, Israel, UK, etc.

PERFOS at your service

PERFOS also offers a large panel of services to its customers, including :

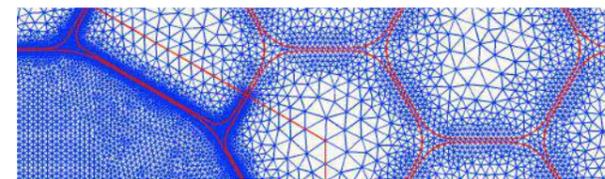
Scientific studies & Consulting in photonics

PERFOS carries out studies for innovative small and medium size businesses, willing to develop new systems based on photonics:

- Comparative studies
- Bibliographic research
- From global technical studies to specific study for re-engineering

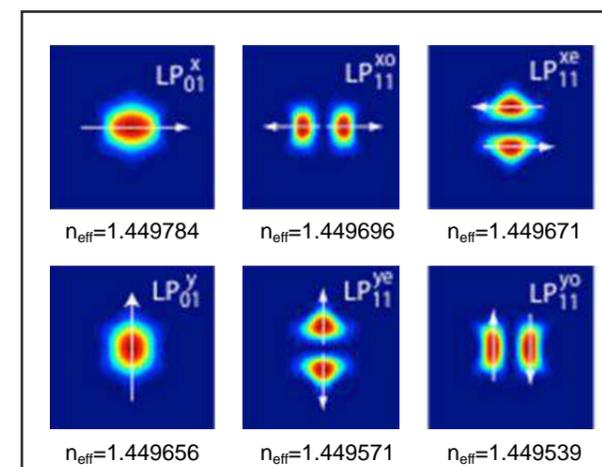
PERFOS also responds to public agencies requesting expertise, impact or development studies on photonics for other economic sectors (agriculture, defense, etc.).

Modelling



PERFOS possesses a high level of expertise in the modelling of complex optical waveguides, computation of waveguide modes (electric field, magnetic field or both) and corresponding propagation properties :

- Effective refractive indexes and confinement losses
- Transverse electromagnetic fields
- Effective mode area
- Phase and group modal birefringence
- Chromatic dispersion



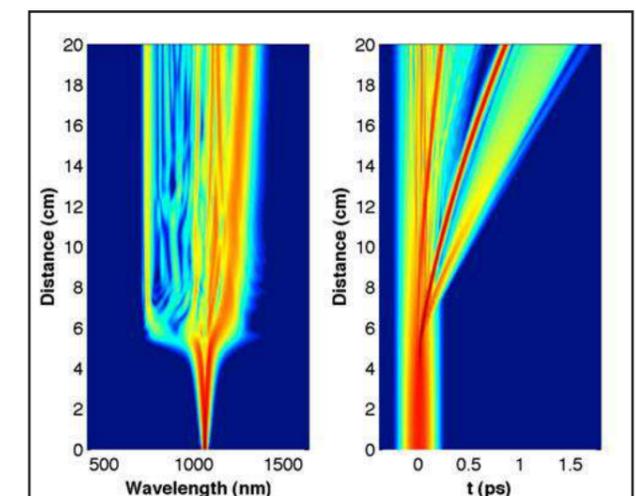
The optical field distributions of first three modes in optical microstructured fiber.

The studied waveguides are structures, which are invariant in one spatial dimension and arbitrarily structured in the other two dimensions.

They may include :

- Real refractive-index profile of elements
- Stress distribution from stress-applying parts inside the waveguide
- Effects of external factors such as a hydrostatic pressure

PERFOS also studies and simulates the pulse-propagation in nonlinear dispersive single-mode waveguides.



Numerical simulations showing the spectral (left) and temporal (right) evolution for input pulse at 1060 nm in 20 cm of single-mode microstructured fiber.