

Summary of the WG1 meeting in Nice, 29-30 Sept. 2006

The following technical presentations reporting on ongoing research were presented during the meeting:

Technical presentation of WG1:

Next generation optical fibre devices, Ben Eggleton, CUDOS, Australia (25min)

Technical session of WG1 (17.00-19.00):

SG1: Fabrication, modeling and characterization of PCFs, chair: Philippe Roy (XLIM)

ARROW microstructured optical fibers: a brief review and recent results
Gilles Renversez (IFRES), Geraud Bouwmans (IRCICA) 25 min

Dispersion simulations in liquid-filled PCFs
Theis P. Hansen (COM-DTU) 10 min

Solid bandgap microstructured fibers
Philippe Roy (XLIM) 15 min

Summary and new steps
Philippe Roy (XLIM) 5 min

SG2: Devices based on PCFs, chair: Theis P. Hansen (COM-DTU)

Fibre-Bragg gratings at IPHT for telecommunication and sensing
Martin Becker (IPHT) 15 min

Fibre Bragg gratings inscribed in HB PCFs
Tomasz Nasilowski (VUB, UMCS, WRUT) 15 min

Linear characteristics of the side-hole fiber manufactured for distributed measurements
Waclaw Urbanczyk (WRUT), Jan Wojcik (UMCS), Luigi Zheni (DII-Dun) 15 min

Summary and new steps
Theis P. Hansen (COM-DTU) 5 min

Joint activities within SG1: *Fabrication, modeling and characterization of PCFs*

Group leader, Sebastien Fevrier, XLIM, France

Fabrication:

- ARROW microstructured fiber has been manufactured by IRCICA/GRIFON and distributed among interested groups for experimental characterization (DII-SUN, IPHT, WU, UZ, WRUT):
- SBF of different types have been manufactured by XLIM and distributed among interested groups for experimental characterization (DII-SUN, IPHT, WU, UZ, WRUT):
- Side Hole (SH) fiber with elliptical core operating at 1.5 μm has been manufactured by UMCS and provided to DII-SUN to test the possibility of distributed measurements of hydrostatic pressure
- Samples of plastic PCFs manufactured by COM-DTU have been delivered to UZ for investigations of intermodal effects.

Modeling:

- Simulations on ARROW microstructured fibers is carried out in collaboration between IFRES (Gilles Renversez) and IRCICA (Geraud Bouwmans).

It is recommended to establish a leader coordinating modeling and simulation efforts.

Characterization:

- Initial characterization of the SH fiber manufactured for DII-SUN has been carried out by WRUT&UMCS;
- Characterization of the HB PCFs with GeO₂ doped core for Bragg grating inscription has been carried out by VUB&UMCS&WRUT
- **For the moment the response concerning ARROW and SB fibers is very limited (only IPHT provided some experimental results). Therefore, it is recommended to improve communication between partners interested in characterization of those fibers . *Philippe Roy (XLIM) and Geraud Bouwmans (IRCICA)* are suggested as leaders of corresponding discussion groups.**

Joint activities within SG2: Devices based on PCFs

Group leader: Theis P. Hansen, COM-DTU

- FBGs in a specially designed HB PCFs with doped core have been fabricated and characterized with respect to sensing applications (sensitivity to temperature, elongation and hydrostatic pressure) (VUB/UMCS/WRUT/IPH/FOS&S)
- COM-DTU can provide MPOFs for BG and taper work, however, no single-mode fiber available – yet! **Who is interested?**
- **It is recommended to stimulate joint activities within SG2 that concentrate on development of sensor components (including tapered PCFs), infiltrated PCFs, physical, chemical and biomedical, gas sensors based on PCFs.**