Łukasiewicz
Instytut
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PhotonHub Experience Centre

Photonic Materials & Speciality Fibers

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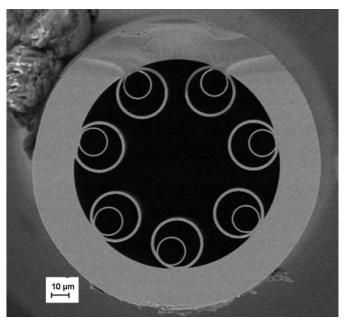
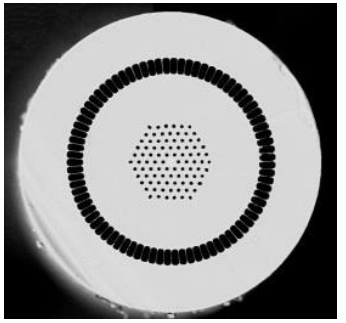
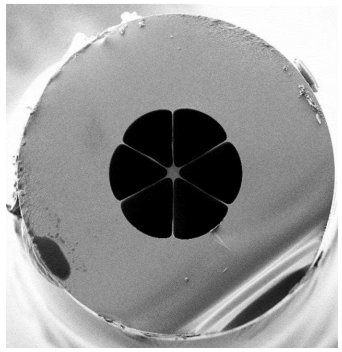
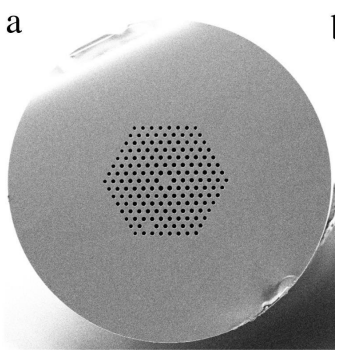
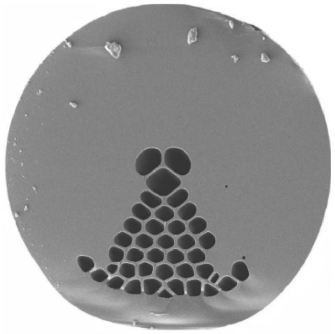
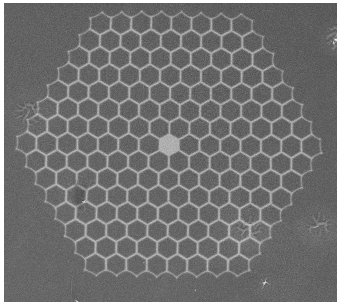












Course

Photonic Materials and Speciality Fibers

Course Provider

Department of Photonic Materials

Łukasiewicz – Institute of Microelectronics and Photonics

Warsaw, Poland

Course overview

Photonic optical fibers found applications in various fields of science and industry and could be made from many amorphous materials.

This 3-day course with hands-on-training will introduce participants to the glass and optical fiber fabrication technology. This will include the whole procedure how from simple compounds in form of powder the optical fibers are fabricated.

The course include condensed knowledge including:

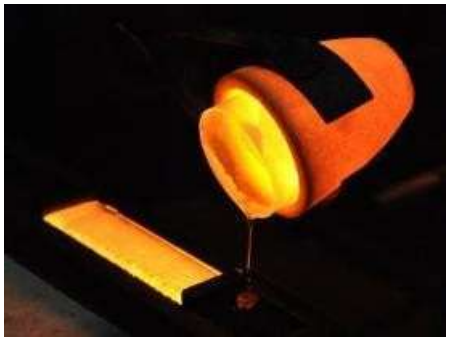
- **Synthesis of multicomponent glasses.**
- **Assembly of the fiber preform.**
- **Microstructured fiber drawing.**
- **Fiber optical characterization.**

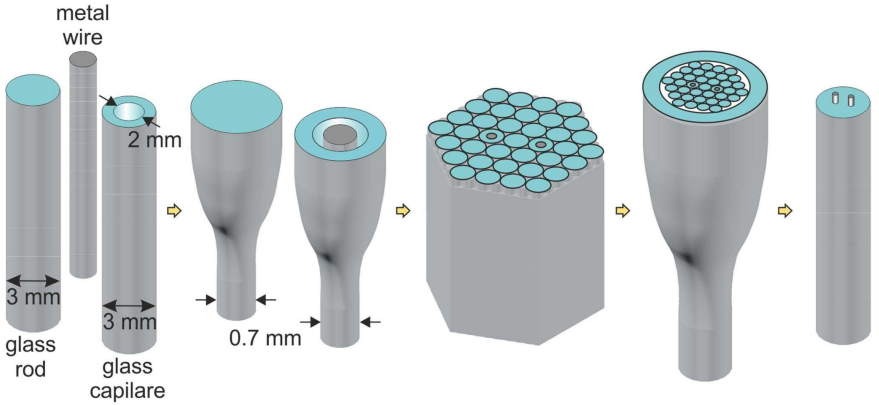
Target audience

The participants should have basic knowledge about the optical fibers and the course is for everyone who would like to learn or extend the knowledge of the optical fiber fabrication.

Expected outcomes

- **Extend the knowledge about available materials from which optical fibers could be fabricated**
- **Learn the possibilities and limits of the designing the fiber architecture and their properties and specialty application**
- **Gain knowledge about basic fiber optical characterization**





Course Schedule

	9:00-10:00	10:00-13:00	13:00-14:00	14:00-17:00	17:00-18:00
Part A	Glass synthesis & characterization introduction	Glass synthesis	Break	Glass characterization	Follow-up & Discussion
Part B	Preform stacking & Fiber drawing introduction	Preform stacking		Fiber draw	
Part C	Fiber measurements introduction	Fiber measurements		Fiber measurements	

Group	Day 1	Day 2	Day 3
1	A	B	C
2	B	C	A
3	C	A	B

Course details (Part A)
Glass synthesis & characterization

Selection of the glass type, crucible material, substrates, melting scheme,

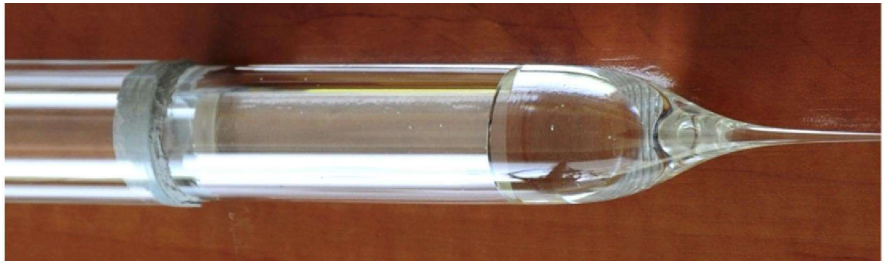
Glass synthesis:
- ***Preparation of the batch***
- ***Glass melting and casting***

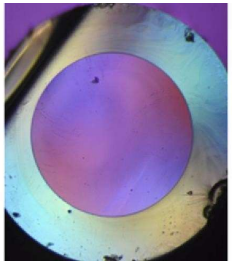
Glass characterization:
- ***Thermal and optical characterization***

Course details (Part B)
Preform stacking & Fiber drawing

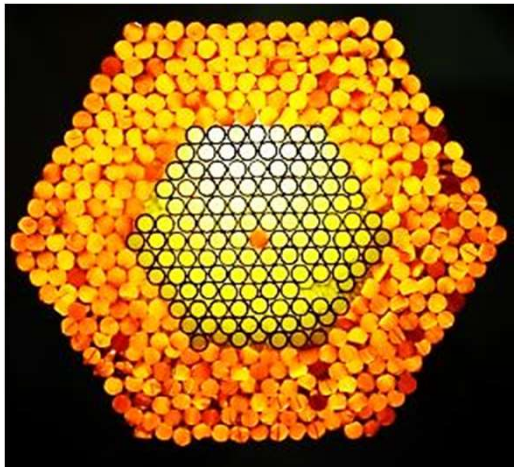
Selecting the fiber design and material

Preform preparation:
- ***Preparation of the preform elements***
- ***Preform assembly***

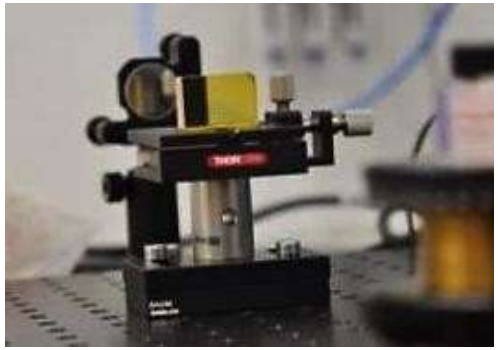




Fiber drawing :
- ***Fiber drawing***
- ***Fiber inspection***

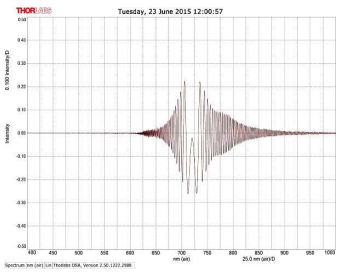


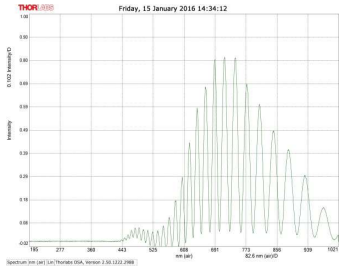
Course details (Part C)
Fiber optical measurements

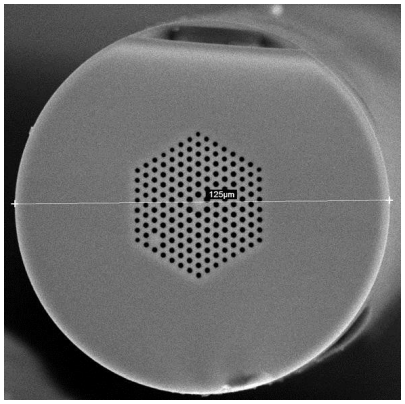


Fiber measurements:

- **Fiber alignment,**
- **Numerical aperture**
- **Dispersion measurements (Mach-Zehnder interferometer)**



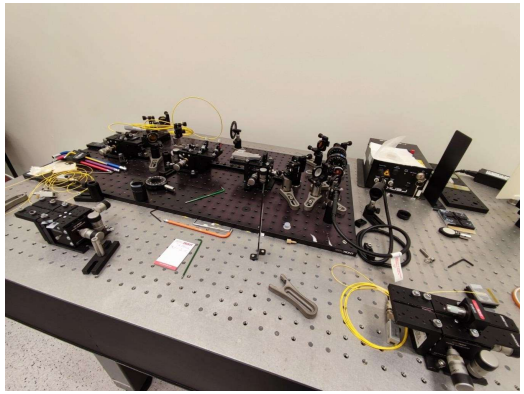




Course Trainers

Course Director:	***Prof. Ryszard Buczyński***
Course Managers:	***Dr Paweł Socha, Dr Adam Filipkowski***
Glass Synthesis:	***Dr Paweł Socha***
Preform stacking & Fiber draw:	***Dr Adam Filipkowski***
Optical measurements:	***Dr Grzegorz Stępniewski***



Course location & Cost

Course location: Wólczyńska Street 133, 01-919 Warsaw, Poland

Number of People – up to 12 attendees per course (3-4 persons per activity/group)

Course Cost – 0 EUR

Option: the course can be extended with lectures given by external experts on fiber optics and their applications (based on PhotonHub Europe pool)

Further Information:

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Keywords

Glass, glass synthesis, glass characterization, mid-infrared, optical fibers, stack and draw, fiber draw, fiber characterization, Mach-Zehnder interferometer, fiber dispersion, numerical aperture.