

Immersive Photonics Lab

A virtual reality application for photonics training.



ALPhA NOV

Optics & Lasers Technology Center

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A virtual reality application for photonics training.

The Immersive Photonics Lab is an innovative training tool that places the learner in a virtual reality photonics lab. The immersive learning environment helps a participant master the professional and technical handiwork.



Virtual reality headset



Optical laboratory in a virtual environment

The Immersive Photonics Lab integrates numerous optical labs at University levels. Each lab is autonomous as a result of its different modes of use:

- A beginner's tutorial to introduce different optical elements;
- A guided practical activity in «step-by-step» mode with different levels to develop procedural skills;
- A «sandbox» mode to work freely

Advantages:

- Develop procedural skills
- Develop autonomous learning
- Guide learners at a variety of levels
- Easy training implementation
- Develop motivation and interest
- Avoid purchasing expensive equipment
- Limit the equipment downtime for training

Practical works available:

- Laser alignment
- Laser collimation
- Michelson interferometer
- Laser safety - beams management

ALPhANOV works on the development of many others.

For Whom?

- PhD, Engineers, technicians and operators in companies (gesture and posture management).
- Researchers and research laboratory staff.
- High school and university students.
- Lifelong learning in photonics
- General public to discover photonics and laser

Technical characteristics



Observer mode



Different levels with educational assistance

Reproduced physical phenomena

- Gaussian beams propagation
- Interference
- Collimation and focusing
- Polarization (work in progress)

Educational scenarios

- "Tutorial" mode to get used to virtual optical components
- "Step-by-step" mode to improve procedural skills
- "Sandbox" mode to work freely

Assistance - Supervision

- Observer mode on smartphone/tablet

3D Environment

- Representing a photonic lab environment

Equipment

- Virtual reality headset (oculus quest 2 and oculus quest 3)
- Weight: 500 g
- Wireless
- No extra equipment



Autonomous virtual reality headset



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