

EYE AND FACE PROTECTION LABORATORY

PPE DEPARTMENT



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PPE Department

The PPE Department, located in Łódź, operates laboratories that enable comprehensive testing of the protective and performance characteristics of all types of PPE in accordance with EU requirements, addressing new hazards and evolving user needs.

The department consists of five specialized laboratories:

- Respiratory Protection Equipment Laboratory
- Head Protection and Fall Arrest Equipment Laboratory
- Protective Clothing Laboratory
- **Eye and Face Protection Laboratory**
- Hand and Foot Protection Laboratory



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Eye and Face Protection Laboratory

Beyond Scientific Research

The Eye and Face Protection Laboratory at CIOP is engaged in practical applications, including comprehensive testing of optical and non-optical parameters of all types of eye and face protection equipment.

These tests are performed using unique testing facilities accredited by the Polish Center for Accreditation, supporting certification processes by evaluating protective parameters.

The laboratory further contributes to the industry by selecting appropriate eye and face protection equipment based on workplace-specific hazards.

Additionally, it offers expert opinions and consulting services to the industrial sector regarding the effective use of eye and face protection.



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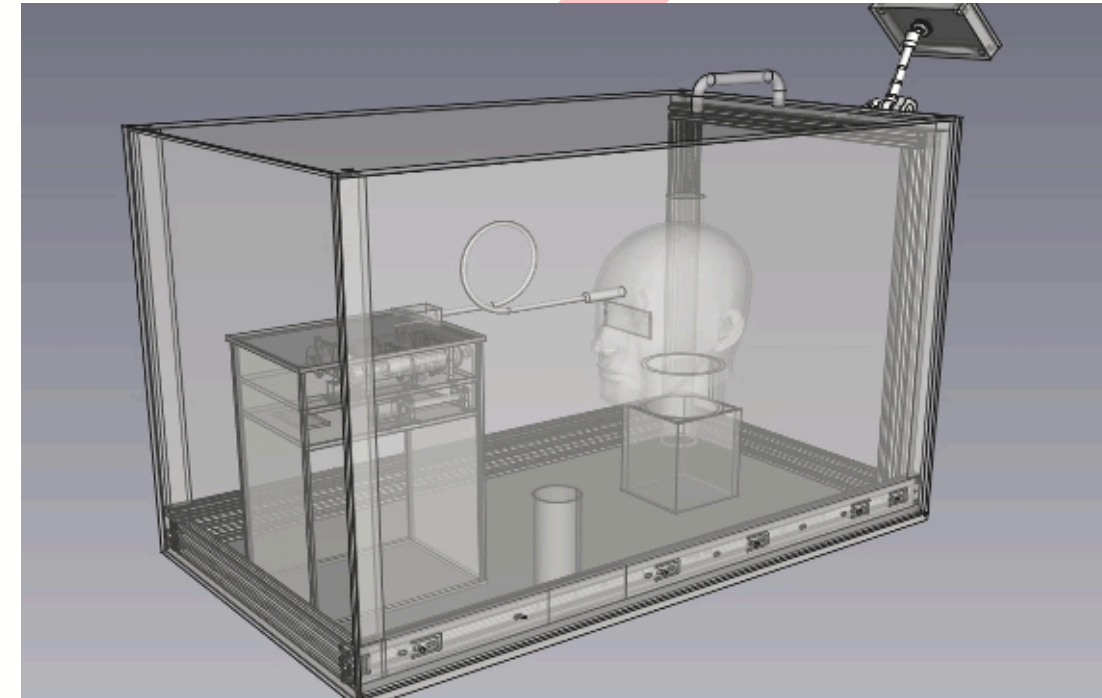
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Method for Testing the Switching Time of Automatic Welding Filters

Project Objective:

The project successfully developed a method for assessing the parameters of automatic welding filters (AFS) in accordance with the technical requirements of the new EN ISO 18526-2:2020-09 standard (first in EU suitable for panoramic AWF).

The project focused on creating a reliable method to test AFS activation time, building a state-of-the-art testing stand, and supporting the development of next-generation protective equipment for welders.



Guidelines for Evaluating the Effectiveness of Optical Protective Filters for Individuals with Intraocular Lenses

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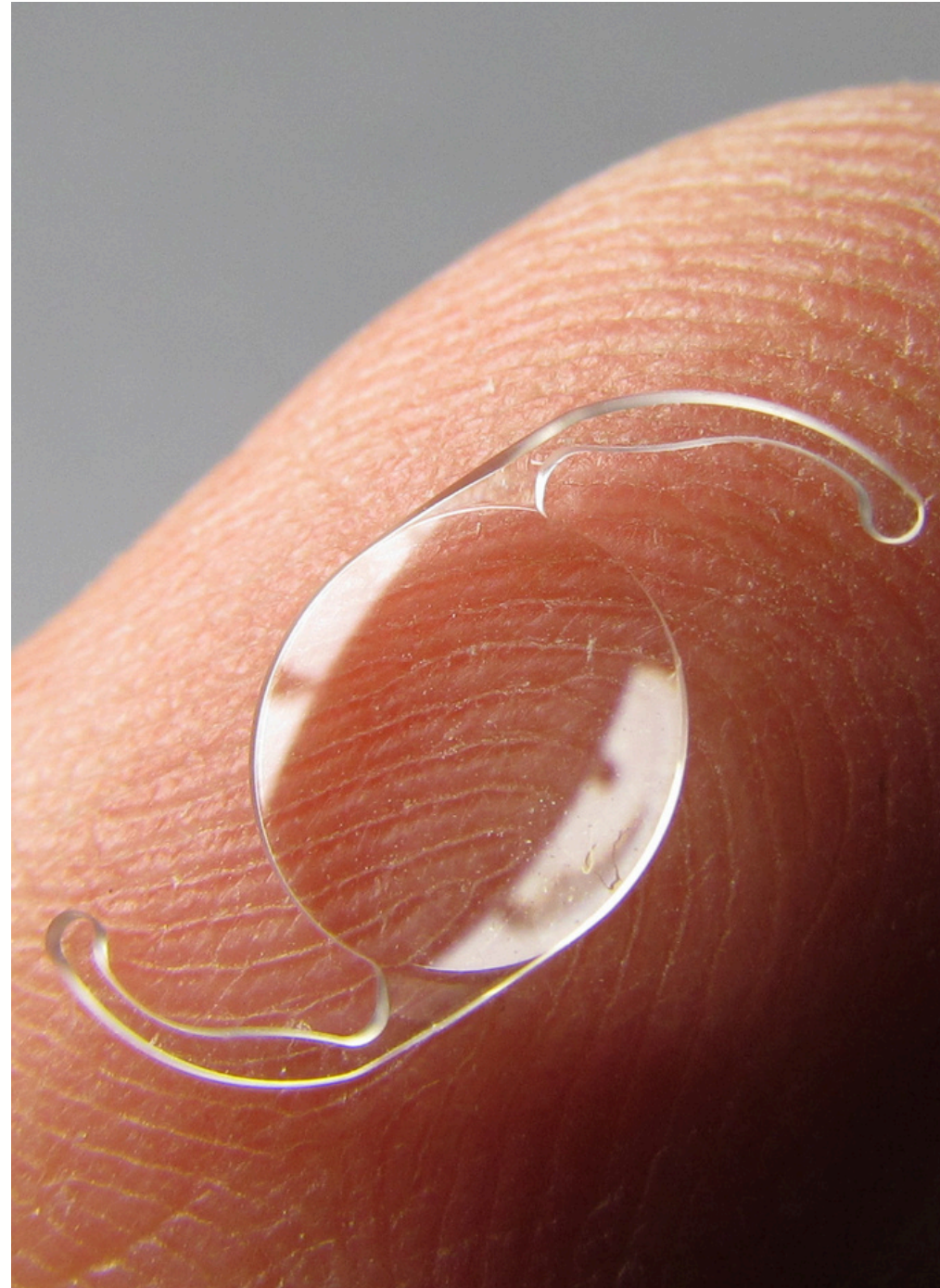
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Project Objective:

This project provided guidelines for assessing the effectiveness of optical protective filters used by individuals with intraocular lenses.

The research focused on providing safe working conditions for individuals with IOLs, ensuring that optical filters are adapted to their specific visual needs.

Optical Filters for Improved Color Recognition in the Workplace

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Project Objective:

The project aimed to develop innovative optical filters that enhance color recognition for individuals with color vision deficiencies, specifically in work environments where distinguishing colors is critical.

These filters modify the spectral characteristics of light, helping to improve the ability to differentiate colors, such as red, green, and blue, which are commonly problematic for individuals with protanopia, deuteranopia, and tritanopia.



Application of VR in Eye Hazard Assessment and PPE Selection for Laser Radiation

The project focused on using VR technology to enhance safety training related to eye hazards caused by laser radiation. A custom VR application was developed to simulate real-world laser environments and help users select the appropriate protective eyewear based on the characteristics of specific laser hazards.

It simulates a medical setting with multiple laser devices and a range of protective eyewear options. Users navigate through a virtual environment, selecting and testing eyewear based on laser wavelength, pulse duration, and MPE. This tool offers an immersive and interactive way to improve understanding of laser safety and the correct use of PPE.



Optical Filters protecting from Laser Radiation Exposure in Industry, Medicine, and Military Applications

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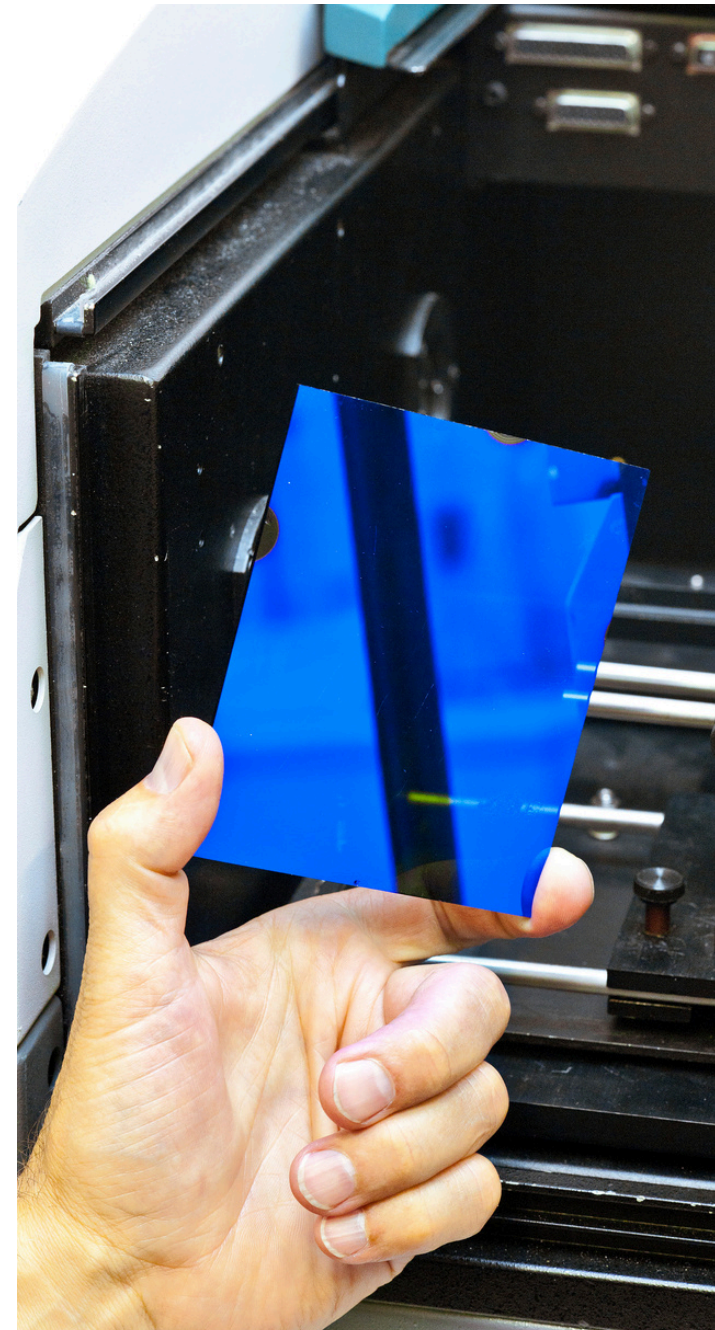
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Project Objective:

The primary goal of this project is to develop innovative optical protective filters for eye and face protection, designed to attenuate harmful laser radiation while maintaining optimal light transmission.

These filters will be tailored to meet the specific needs of various industries, ensuring effective protection against different types of laser radiation.

This will contribute to enhancing the safety of workers in the industrial, medical, and military sectors who are exposed to hazardous laser radiation.

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Thank you

This presentation was created on the basis of results of a research task carried out within the scope of the 6th stage of the National Programme “Governmental Programme for Improvement of Safety and Working Conditions” funded by the resources of the National Centre for Research and Development.

Task no. III.PB.14 entitled “Optical Protective Filters for Applications in Environments Exposed to Laser Radiation in Industry, Medicine, and the Military Sector”.

The Central Institute for Labour Protection – National Research Institute is the Programme’s main co-ordinator.

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