



# *Investigation of the Fabry Perot Interferometer and Diffraction of the Fraunhofer, Fresnel*

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## *Overview*

Laboratory stand «Investigation of the Fabry Perot interferometer and diffraction of the Fraunhofer, Fresnel» is designed for hands-on study of Fabry Perot interferometer, Fraunhofer and Fresnel diffraction. It is designed for study the spectral characteristic of Fabry Perot interferometer, as well as the diffraction of the Fraunhofer, Fresnel.

This stand can be used by students which study the spectral characteristics of the optical devices.

The software developed in the LabVIEW graphical programming environment.

## *Features*

- All measurements are automated
- Students work with advanced equipment
- Balanced level of automation and manual mode
- Step-by-step instructions for students
- The choice of laboratory work from the menu
- In the future there may be other laboratory work on this platform
- Ensure the safety when working with this platform

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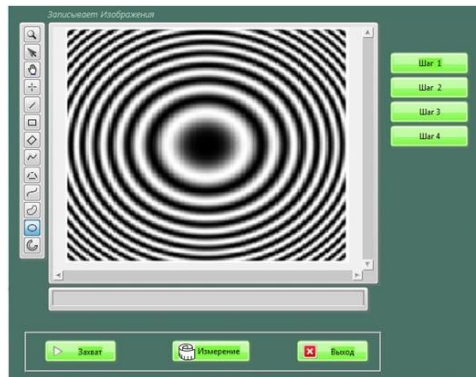
Rev. **0.1**

## Required hardware and software

Hardware	Software
NI Smart Camera	NI Vision Builder
Laboratory stand	Lab software
	User manual

## List of Labs

- Getting interference rings in manual mode
- Investigation of the Fabry Perot interferometer characteristics
  - The diameter of the interference rings
  - Angular dispersion
  - Linear dispersion
  - Free dispersion



- Getting diffraction image using the screen with a round hole
  - Defining the type of diffraction (Fraunhofer, Fresnel)
  - Determine the number of Fresnel diffraction rings
  - Determination of the diameter of the hole and the comparison with the actual diameter (for Fresnel diffraction)





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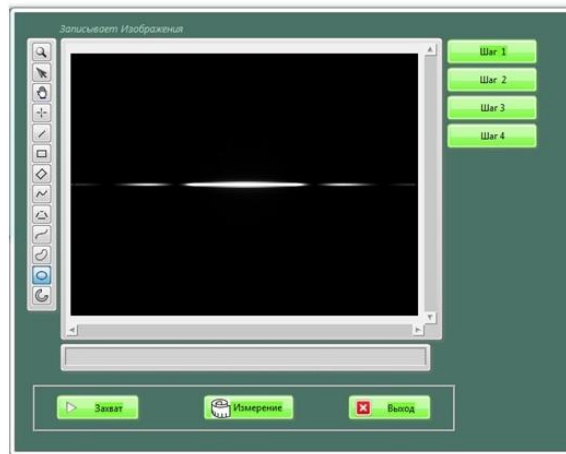
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4. Getting diffraction image using the screen with regulated narrow slit
  - Defining the type of diffraction (Fraunhofer, Fresnel)
  - Determine the number of Fresnel diffraction rings
  - Determination of the width the slit (for Fresnel diffraction)
  - Getting diffraction spectrum (for Fraunhofer diffraction)
  - Determination of the average width of the slit (for Fraunhofer diffraction)



5. Getting diffraction image with a diffraction grating (for Fraunhofer diffraction)
  - Getting diffraction spectrum
  - Obtaining the average value of the grating constant

