EFFECT OF ROTATION ON CHANGES OF INTERFERENCE FRINGES IN THE MICHELSON INTERFEROMETER

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To perform the work was assembled interferometer with a rigid skeleton shoulders, made of pipes with the outside diameter of 22 mm and a wall thickness of 3 mm with platforms to mount the mirror. Tube covered with insulating layer porous plastic. The device builds on the basis of the optical bench with rubber tabs to eliminate the vibrations. A rotating disk drive attached to the ceiling of the laboratory suspensions, rubber-to eliminate the effect of mechanical vibrations on the interferometer. Scheme of the interferometer is depicted below (Fig. 1).

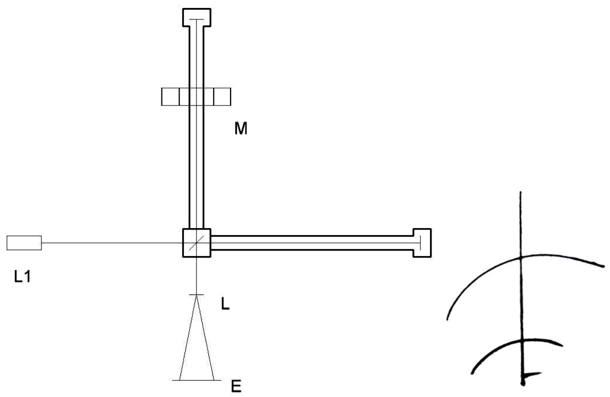

Figure 1.

Legend elements: L1- laser, E – screen, L – focusing lens, M – a rotating disk. The length of the shoulder is 87 cm. Hard disk size: inside diameter of 11.5 cm, outer diameter 16 cm, weight 2.5 kg disk Speed 1370 U/ min. Used helium-neon laser with a wavelength of radiation 6328 A. As a disk drive used engine manifold P = 30W speed 6300 U/min. To measure displacement of interference fringes used a stencil repeating the curvature of the interference lines.

Below is a table of displacement of interference fringes in two successive runs of a disk. During acceleration and braking measured. Photographing interferograms was conducted with an average interval of 10 seconds between shots. Measurements were carried out on photos using a stencil.

	First run		Second run	
0	1,7 mm	1,6 mm	2,3 mm	2,6 mm
0	2,0 mm	1,6 mm	2,7 mm	2,7 mm
0	2,0 mm	1,6 mm	2,7 mm	2,6 mm
	2,0 mm		2,7 mm	
			2,7 mm	

The graph (Fig. 2) shows the offset bands when turning the disk.

It is intended to further the development of devices and units to obtain more precise values for the clarification of the causes of the phenomenon. This development is preliminary and does not possess sufficiently broad capabilities for accurate measurements.

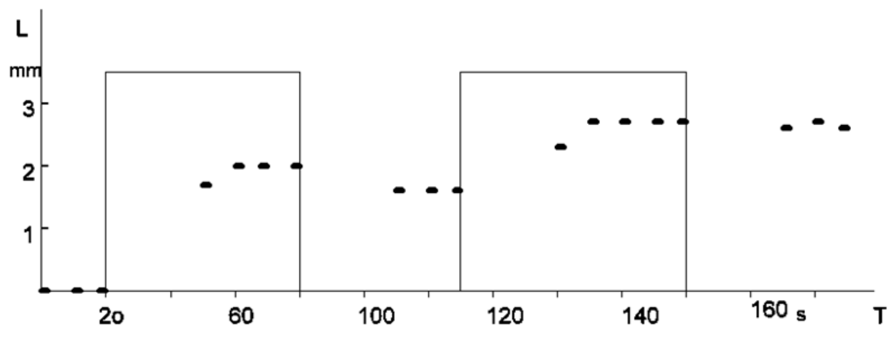

Figure 2.