Abstract for graduation paper

«Study of interrelation between blood microrheologic parameters using optical techniques»

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Modern optical methods allow to measure human blood flow properties without direct mechanical contact with the blood cells. In this work the methods of laser aggregometry, diffractometry, and optical tweezers were used to assess the complex relationship between red blood cell properties.

The abilities of red blood cells to deform and to aggregate play an important role in blood microcirculation. These features describe the state of human organism and are significantly altered in case of pathologies.

As a result of this work a significant decrease in aggregability of red blood cells was found when the deformability of the cells was reduced. This holds for two different ways of altering the deformability: incubation of red blood cells in glutaraldehyde solution and changing the suspension osmolarity. The relationship of red blood cell properties is different for healthy donors and patients with arterial hypertension.