

## TO THE VELOCITY OF LIGHT PROPAGATION IN METALS

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### S u m m a r y

Experimentally measured angular dependences of the internal and external reflections of polarized radiation from a metal (gold) film on the surface of a glass semicylinder are used to calculate the refractive indices of both the semicylinder material and the metal. The results of measurements of total internal reflection are used to determine the losses of light intensity at the semicylinder surfaces and in the semicylinder material bulk. The direct and inverse photometry problems have been solved for light incident onto the gold film from both the air and the glass side. A good agreement between theoretical results and experimental data has been obtained. The issue of determination of the critical angle of the attenuated total internal reflection and the angular position of the plasmon resonance has been examined. On the basis of the results of our experimental studies, a positive answer to the fundamental issue – the validity of the relativity postulate about the finiteness of the velocity of light propagation in media – has been obtained.